DOCUMENT RESUME

ED 224 478 IR 010 537

AUTHOR Loop, Liza; And Others
TITLE ComputerTown. A Do-It-Yourself Community Computer Project.
INSTITUTION People's Computer Co., Menlo Park, CA.
SPONS AGENCY National Science Foundation, Washington, D.C.
PUB DATE 82
GRANT SED8015964
NOTE 112p.
PUB TYPE Guides - General (050)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Community Services; *Computer Literacy; *Computer Oriented Programs; Computer Programs; Innovation; *Microcomputers; Organization; *Planning; *Program Implementation
IDENTIFIERS California (Menlo Park)

ABSTRACT

This manual based on Menlo Park's experiences in participating in a nationwide experimental computer literacy project provides guidelines for the development and management of a ComputerTown. This project, which was begun in September 1981 in the Menlo Park Public Library, concentrates on providing public access to microcomputers through hands-on computer experiences for the new to intermediate potential user, and assisting them in becoming comfortable, aware, and informed about microcomputer technology. Advice on planning a ComputerTown covers administrative personnel, computer access, and local newspaper contact. Ideas are presented for offering introductory events, special workshops, and working with volunteers. Four typical events are profiled: a business night, computers at the Learning Faire, a Word Processing Study Group, and the ComputerTown Barrington (Illinois) Conference. Typical user questions and advice on personal computer selection are included. A description of courses and other learning activities includes user validation, games and programming, sample course titles and curricula, ComputerTown Scrapbooks, peer teaching, host institutions, planning new ComputerTowns, and creating a formal organization. Appendices contain technical advice on handling resources, including physical arrangement, equipment handling, software storage and cataloging, copyright considerations, software security, and print materials. (LMM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED224478

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ComputerTown
A Do-It-Yourself Community Computer Project

Written by
Liza Loop, Julie Anton, and Ramon Zamora

ComputerTown, USA! is a computer literacy project of People's Computer Company, a non-profit educational corporation, P.O. Box E, Menlo Park, CA 94025. This material is based upon work supported by the National Science Foundation under Grant. No. SED8015964. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the National Science Foundation. Copyright, 1982, People's Computer Company; all rights reserved.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Ramon Zamora

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IR 010 537

Reprinted Materials

Portions of this document were taken in whole or in part from previously published materials and are reprinted here with the permission of the original author or publisher.

The specific sections to which reprint permissions apply are:

"Why Do We Need ComputerTowns?", page 5, taken from the ComputerTown, UK! Guidelines by David Tebbutt, Human Skills, 7 Collins Dr., Eastcote, Middlesex, UK, HA4 9EL

"Computers At The Learning Faire", page 28-30, by David Thornburg, reprinted by permission from COMPUTE! Magazine, P.O. Box 5406, Greensboro, NC 27403, (919)275-9809, copyright 1980, Small Systems Services, Inc.

"Computers At A Public Museum", page 59-60, by Liza Loop, reprinted from THE ATARI CONNECTION (tm), Volume 1, No. 2, Summer 1981, with permission of Atari, Inc.

Table of Contents

Preface

Chapter I. Welcome to ComputerTown!!! 1
- A. What Is A ComputerTown? 1
  - What Constitutes Computer Literacy At A ComputerTown Site? 1
  - Who Benefits From A ComputerTown? 2
  - What Does A ComputerTown Do? 3
  - Where Is A Typical ComputerTown Located? 4
  - Are There Any ComputerTowns Yet? 4
  - What Is ComputerTown, USA! 5
  - What Is ComputerTown International? 5
  - Why Do We Need ComputerTowns? 5
- B. The History of ComputerTown 7
- C. Technology's Pioneers--Past, Present, and Future 9

Chapter II. Planning Your ComputerTown 10
- A. The ComputerTown Mayor 11
- B. Two Mayoral Assistants 11
- C. Access to One Computer 12
- D. A Friendly Public Access Host: The "Town Hall" 12
- E. Local Newspaper Contact 13

Chapter III. The Gentle Art of Offering Events 15
- A. Introductory Events 16
- B. Special Workshops 18
- C. Working with Volunteers 19

Chapter IV. Typical ComputerTown Events: Four Profiles 22
- A. Profile 1: Business Night 22
- B. Profile 2: Computers at the Learning Faire 28
- C. Profile 3: Word Processing Study Group 31
- D. Profile 4: ComputerTown, Barrington Conference 34
- E. Typical Questions at ComputerTown Events 37
- F. How Do I Select a Personal Computer? 40

Chapter V. Courses and Other Learning Activities 42
- A. ComputerTown User Validation 42
  - Software: Use of Games 44
  - Beginning Steps in Programming 46
- B. ComputerTown Courses 49
  - Sample Course Titles 49
  - Curricula 50
- C. Courseware: ComputerTown Scrapbooks 50
  - Using The Scrapbooks 51
  - Sample Scrapbooks 51
- D. Peer Teaching 54

E. Computertown Mentor Project 55

Chapter VI. ComputerTown Host Institutions 59
A. Computers at a Public Museum 59
B. Libraries 62
Micros in the Menlo Park Library 62
Rules and Procedures 66

C. Planting New ComputerTowns 68
Computers at the Senior Center 68
Computers at the Boys' Club 69
ComputerTown School Outreach Project 72
Non-Facility Centered Groups 74
Neighborhood Computer Clubs 74
Users' Groups 75

Chapter VII. Creating a Formal Organization 77
A. ComputerTown Charters 77
B. Funding 82
Cost Recovery Funding 82
Grant Funding Strategy 82
Writing The Proposal 87
Funding From The Host Institution and Other Funding Possibilities 89

Chapter VIII. Conclusion 91

Appendix
I. Handling ComputerTown Resources 92
A. The Physical Arrangement 92
B. Handling ComputerTown Equipment 94
Inventory 95
Equipment Maintenance 96
Preliminary Troubleshooting 96
Cleaning Tape Heads 97
Cassette Button Malfunction 98
Troubleshooting Tapes 98
Preventing Keyboard Problems 98
Sticky Keys 98
Fuse Trouble 99
Problems Beyond Your Scope 100
Hardware Security 100
C. Software Storage: Selecting The Right Medium 101
D. Cataloging Software 103
E. Copyright Considerations 104
F. Software Security 104
G. Print Materials 104

PREFACE

We live in an era of accelerating change. Looking around us, in the 1980's, we see the tools we mastered during childhood displayed as museum relics. Our books are outdated before we can buy them, much less get them read. Word of events, both earth-shaking and trivial, reaches us within seconds from anywhere on the plane.. Traditions develop in months instead of decades.

In spite of this, at least one philosophical cornerstone remains untouched -- the right of every individual to participate in the growth of our world.

How do we insure that this right becomes a practical opportunity and not merely empty rhetoric? How can we keep up with global changes, living as we do in our own local communities? How can we promote equal access to the tools of the future?

A ComputerTown is one answer to this set of questions; one way of providing people within a community with information and access to computer-based technologies. The pages that follow present an album of verbal snapshots that chronicle the development of many computer literacy activities. Most of the pictures come from the ComputerTown in Menlo Park, California. A few show our friends from around the world. The subjects of the pictures are activities, people, and resources.

We offer these experiences in this form so that the ComputerTown idea will grow and spread worldwide as a community of people making technology available to everyone. Within this book we extend our hand to you and encourage you to start your own ComputerTown projects. Why? So that you, your neighbors and your children will walk confidently with us into the information age.

Few of the ideas in this book are original to the authors. For the most part, we have served as photographers, capturing on paper the images of others as they encountered technology. We thank everyone who has been part of the evolution of this project and regret that we are unable to list all of you by name. Instead, we invite you to watch for people and places mentioned throughout the text. Each citation and each inclusion in the resource list is an acknowledgement of our thanks and appreciation.

Each person who attended a ComputerTown event,

workshop, or class has taught us something new. Each member of an audience who has asked us questions about the project and the technology has made a contribution to this document.

A declaration of special appreciation goes out to the hundreds of volunteers at all the ComputerTown sites who gave their time and know-how to do the real work of each project -- carrying machines, mailing flyers, assisting in classes, cleaning keyboards, soliciting donations, and saying over and over again, "That's right; now press the key marked RETURN."

A specific recognition of contribution goes to the people who have worked as ComputerTown staff members, advisors, and helping hands on the Menlo Park project. They are:

STAFF

Julie Anton
Pat Cleland
Jeanne Duprau
Sue Eldredge
Barbara Harvie
Fritzi Lareau
Liza Loop
Michael Madaj
Ann Merchberger
Niels Mortenson
Martine Peyton-Boot
Cheryl Rhodes
Bill Scarvie
Clifford West
Ramon Zamora

ADVISORS

Ludwig Braun
Jane D. Gawronski
Bob Albrecht

HELPING HANDS AND CONTRIBUTORS

Holly Anderson
Marlin Ouverson
Matt Lehmann
Pelton Steward
David Tebbutt
David Thornburg
David Warren

MENLO PARK LIBRARY STAFF

Beata Bartholomay
Doreen Cohen
Robbie Fanning
Karen Frederickson
Dan Horne
Sue Rocca-Butler
Maryann Whiting

Chapter I
Welcome to ComputerTown!!!

Let's begin by exploring a few of the basic concepts which form the foundation of the ComputerTown Project.

A. What is a ComputerTown?

A ComputerTown is any public access computer literacy project. It is a group of individuals, adults and children, helping each other become informed citizens of today's information society.

A ComputerTown's goal is to offer an informal educational opportunity for everyone in the community to become "computer literate".

What Constitutes Computer Literacy at a ComputerTown Site?

The word "literate" has traditionally referred to an educated person, one who can read and write the spoken word. Before the introduction of the many mechanical and electronic tools of the last eighty years, this definition was adequate. It worked in the pre-technological culture of the nineteenth century.

Today, in the face of evolving technologies, a broader definition of literacy is necessary. This requirement surfaces each time we address the use of a mechanical or electronic tool. For example, a person who drives a car needs some reading and writing skills in order to get a driver's license. The "process" of driving, however, demands few reading and no writing abilities.

ComputerTown concentrates on the public access of microcomputers for people in the lower and middle portions of a broad spectrium of possible literacy activities. Computer literacy at the ComputerTown, Menlo Park site focuses on providing hands-on computer experiences for the new to intermediate potential microcomputer user, assisting these people in becoming comfortable, aware, and informed about this technology.

Only a small fraction of a ComputerTown's activities involve "reading and writing." ComputerTown classes, workshops, and hands-on situations are informal experiences facilitated by

knowledgeable, friendly "driver-trainers." The staff deals primarily with "familiarity" and not "proficiency" in their interactions during workshops and courses. When people are ready to "graduate" from the ComputerTown environment, the staff provides ideas, resources, and suggestions on where to turn for more information.

Who Benefits From a ComputerTown?

Anyone who would not otherwise have access to a computer or computer know-how benefits from a ComputerTown.

Children meeting microcomputers for the first time encounter a new tool for solving problems and expressing creativity. When a disadvantaged child discovers that he can program a computer, he is suddenly open to a whole new spectrum of educational and vocational possibilities. Teenagers, many of whom are already computer literate, learn social and teaching skills. A ComputerTown provides a significant learning experience which broadens and supplements what a child learns in school. This knowledge is often passed on from child to parent.

Initial adult users with little experience often exhibit anxiety and discomfort when they first encounter the technology. An introductory set of workshops, courses, and hands-on experiences address these people's questions and concerns. The words "Computer Comfort" categorize this stage of the user's investigations. The user looks for some way to relate to the technology, some way to get comfortable with it, and ComputerTown shows them how.

Once a sense of comfort is established, the user and his interactions with ComputerTown progress through a stage labeled "Computer Awareness." The focus at this and the previous level is not on "proficiency" (that is, on "reading and writing" in the traditional sense) but on "familiarity" with the technology. Knowledge at the experiential level, gained by hands-on activities, takes precedence over "hard" learning objectives, such as being able to program.

Once users are comfortable with the technology and aware of the computer's capabilities, they are offered preliminary courses and workshops in "Computer Tool Use." Some of these activities might include learning to program the computer, experimenting with various computer languages, or adapting software packages for use within the home or small business.

At ComputerTown, Menlo Park, computer literacy activities stop at this point. As mentioned earlier, the Menlo Park test site has concentrated on the new to intermediate user of the technology. ComputerTowns need not restrict their activities to these first three user stages. The impetus for ComputerTown, however, came from the discovery of the large number of people who wanted access to microcomputers and had no notion of where to begin their search. Most ComputerTown sites find it adequate and a test of their resources to try and service this particular set of users exclusively.

The literacy approaches outlined for kids don't necessarily follow those of the adults. As one person on the ComputerTown, USA! project has noted, "You teach kids programming; you teach adults what to do with the machine, the applications." Most kids appear to be comfortable with the technology. Some kids possess an amazing awareness of microcomputers and technology in general. Kids perfer to learn, as quickly as possible, how to control and direct the machine using the available programming languages. They also like to play games on the computer.

At ComputerTown, Menlo Park, courses for kids involve the use of "games-with-a-purpose" and the teaching of the fundamentals of programming. "Games-with-a-purpose" are programs that combine implicit learning activities within a gaming context. Courses and workshops for kids are presented informally and emphasize exploration and experimentation.

ComputerTown offers adults a chance to take the first steps toward a career change, share a skill or hobby with others, or overcome shyness in the face of a new technology. For senior citizens, the handicapped, and others, computer literacy can open the way to fuller participation in today's world.

What Does a ComputerTown Do?

Each local ComputerTown determines its own activities.

In its first two years, the ComputerTown in Menlo Park, California has run many classes, workshops, playdays, demonstrations, question and answer sessions, special interest study groups, and lectures. Computers have traveled to the pizza parlor, the senior center, economically disadvantaged sectors of the community, and special education schools. ComputerTown, Menlo Park has also provided continuous

public access to microcomputers at the public library, and its "computer validation" project certified more than 300 kids in the rudiments of microcomputer operation over a twelve month period. Still more projects are in the idea stages at Menlo Park: rent-a-computer (to use at home), rent-a-computerkid (to teach you how), tours of computing facilities, neighborhood computer clubs, show and tell meetings, video game contests, programmable vehicle rodeos, and a mentor program to find computer professionals who will work with those whose grasp of computers becomes advanced.

There are no specific requirements for ComputerTown activities. They grow and develop according to community need and interest.

Where Is a Typical ComputerTown Located?

A ComputerTown can be most anywhere. It is an informal learning environment, with all the variation that entails.

In one community, ComputerTown may be a common interest shared by independent people and groups who decide to make computers available for public use. Another ComputerTown could be a formal organization which has officers, a well-defined program of activities, a place of business, and equipment. Some ComputerTowns are located at libraries, recreation centers, senior centers, or other public facilities. Others may promote computer literacy with the support of private groups, computer stores, computer hobbyist clubs, or schools and colleges.

Someone sets up a computer where people can learn through hands-on experience, and suddenly you have a ComputerTown.

Are There Any ComputerTowns Yet?

Quite a few exist already, and the list continues to grow. ComputerTown, Menlo Park, located in the public library, has been promoting computer literacy since 1979. There is a ComputerTown in Florida, one in Oklahoma, one in Illinois, several in the United Kingdom, and many others around the United States which share the spirit, if not the name, of ComputerTown.

A complete list of present ComputerTowns can be found under "Resources" at the back of this book. For more up-to-date information, write to ComputerTown International, P.O. Box E, Menlo Park, California

94025.

What Is ComputerTown, USA?

In September, 1981, ComputerTown, USA! became a nationwide project of People's Computer Company, funded by the National Science Foundation. Its job has been to conduct an experimental computer literacy project in the Menlo Park Public Library and to encourage the development of new ComputerTowns by providing support in three forms:

1) publication of a periodical called The ComputerTown, USA! News Bulletin;

2) development of an "Implementation Package" containing information on how to start and manage a successful ComputerTown;

3) creation of an information network among the ComputerTown affiliates.

The funding for ComputerTown, USA! extends to the end of 1983. In response to public interest, the staff of ComputerTown, USA! went on to form an offspring organization called ComputerTown International.

What Is ComputerTown International?

While ComputerTown, USA! is a short-term, experimental project of limited scope, ComputerTown International plans to extend the range of products and services offered to potential ComputerTown organizers on a long term basis. Regional Community Coordinators will locate human and computer-based resources to facilitate the formation of ComputerTowns. In addition to its bi-monthly Bulletin, ComputerTown Interational is creating a series of ComputerTown books for beginners.

ComputerTown International is a membership organization that accepts contributions. Funds are applied to the support of computer literacy activities throughout the world.

Why Do We Need ComputerTowns?

David Tebbutt, who helped develop the British ComputerTown network (ComputerTown, UK!), puts it this way:

"We need a wide acceptance and familiarity with computers among the population at large. ComputerTown provides a completely non-threatening and fun way of

bringing this about. In the future, our children will be thinking in ways that we can't even envision at the moment. The computer is providing them with an intellectual tool that they can drive and control to achieve mental feats which we would probably consider absurd--if we knew what they were likely to be! Our approach to ComputerTown is intended to create an environment in which this can happen."

B. The History of ComputerTown

The first ComputerTown began in 1979 as the local community experiment of Bob Albrecht and Ramon Zamora, who were writing books on elementary computer programming. In order to observe ordinary people exploring computers for the first time, Bob and Ramon brought microcomputers to pizza parlors, book stores, parks, and their local public library. What they saw not only improved their manuscripts, but provided hours of pleasure to the kids and adults who played computer games and learned BASIC language commands. Soon the computers and their collection of preprogrammed game tapes found a permanent home in the Menlo Park Public Library. The dream of making Menlo Park, California the first completely "computer literate" community began to take shape. They called the project "ComputerTown, USA!"

ComputerTown, USA! was by no means the first public access computer literacy project. However, its friendly, informal approach attracted national press coverage and the attention of the National Science Foundation's (NSF) Development in Science Education Project. Late in 1979, the project staff sent an informal proposal to the National Science Foundation requesting funding for activities. NSF requested a more formal proposal, and by 1980, ComputerTown was officially sponsored by the National Science Foundation. Zamora had been awarded $224,000 to develop ComputerTown, Menlo Park into a demonstration computer literacy project, to disseminate the Menlo Park model to libraries and other institutions as widely as possible, and to promote the formation of other ComputerTown sites across the United States.

With the inception of ComputerTown, UK! in Great Britain, the project surpassed its original goals to become an international computer literacy network. The new British ComputerTown affiliate was launched in the November, 1980 issue of Personal Computer World magazine. Fifteen ComputerTown projects mushroomed throughout the United Kingdom in the first six months, and two existing computer clubs became affiliated with ComputerTown.

Taking their lead from suggestions published in the ComputerTown News Bulletin, still other projects began to appear.

The Palo Alto (California) Junior Museum presented a month-long computer exhibit, and began to offer classes on computer literacy in conjunction with

the city's community services program.

"Computers for Senior Citizens," implemented by volunteer Matt Lehmann in conjunction with Menlo Park, Calfornia's Little House Senior Center, went on to join forces with Joan Targ's Palo Alto-based "Computer Tutor" program. As a result of this merger, young people began to work with the seniors on a set of time-sharing terminals supplied with the aid of a local foundation. Participating seniors could go on to become full-fledged "Computer Tutors" themselves.

The Herbert Hoover Boys' Club, also in Menlo Park, received a Commodore computer, donated by Bob Albrecht, which proved so popular with club members that the club obtained several more and offered daily computer access as a regular service. One young man at the Boys' Club observed, "If they had computers when I was in school, I'd probably still be there!"

Holly Anderson of Barrington, Illinois, is a parent who began to promote computer literacy in her local school system, and went on to found ComputerTown, Barrington. The project's kickoff event was a conference for over 500 teachers and educators.

Several independently initiated public access computer literacy projects share the spirit, if not the name, of ComputerTown. One such project is based at The Capital Children's Museum in Washington, D.C. With the donation of thirty computers by Atari, Inc. in 1981, the museum began to use computers in its communication exhibits. It has also established a computer literacy classroom for classes in programming and computer play, and the museum staff also initiated comprehensive computer literacy classes for members of Congress. Museum visitors may use the KidNet computerized message system, made possible by a grant from Digital Equipment Corporation. "Superboots," the museum's software development project, is producing a series of educational book/software packages which let visitors take the spirit home.

By the summer of 1982, the network of ComputerTowns and ComputerTown affiliates numbered over eighty sites throughout the world. In addition to those detailed above, this network includes the Center for Mathematics Literacy at San Francisco State University, the San Bernadino, California Public Library, the Chicago Public Library, the Austin Public Library, the Norman, Oklahoma Public Library (ComputerTown, OK!), and others.

C. Technology's Pioneers -- Past, Present, Future

All this activity stemmed from a rich heritage of research and experimentation in educational computing sponsored by many national governments as well as the flowering computer industry.

Early projects of the 1960s and '70s included research by UNESCO and at Stanford Research Institute. University-based projects were undertaken by Stanford University, Lawrence Hall of Science at U.C. Berkeley, the Huntington Project of the State University of New York, the Plato Project at the University of Illinois, the LOGO Project at Massachusetts Institute of Technology, research at the Oregon Museum of Science and Industry, and Project Solo at University of Pittsburg. Privately sponsored projects included activities at the Boston Children's Museum, the Mitre Corporation's Ticcit Project, and several California-based projects, including the Resource I Project in San Francisco, the Community Memory Project in Berkeley, the LO*OP Center in Sonoma County, the Marin Computer Center in Marin County, and the Community Computer Center in Menlo Park.

Take the findings of these and other pioneer studies, apply them in the context of today's easily-accessible, relatively low-cost microcomputer technology, mix well in an informal public access setting, and you have today's ComputerTown.

When ComputerTown's founders took their first machines to the pizza parlor, they discovered that when people come together with computers in a comfortable, exploratory setting, new discoveries are bound to be made--not only about the fundamentals of the technology, but about all kinds of possible applications. In the decades since the first studies took place on the role of computers in education, our general knowledge has measurably increased. It is not all that unusual these days to walk into a ComputerTown site and find a teen-aged programmer deep in thought and exploration. While he may only be writing the simplest of programs, he is blazing a trail toward new technologies to shape our future world.

Chapter II
Planning Your ComputerTown

The first ComputerTowns just began. The original volunteers did not invest a lot of effort in planning or setting specific goals, since their purpose was primarily experimental. Now that the exploratory cycle is over, however, ComputerTown International recommends a certain amount of planning before activities begin.

Perhaps you are computer literate, and decide to share your interest and knowledge with others by developing a ComputerTown project in your community. You no doubt have some ideas to get you started; but what if you've never even touched a computer? You can still take steps toward establishing a computer literacy project. Begin by gathering information. Visit local computer clubs. Explore your town for likely places to house a public access computer project. Find a partner to share ideas, tasks, knowledge, and resources. Don't let a lack of technical know-how slow you down. You will become more expert as the project develops.

If you are computer literate with equipment available for the project's initial use, you may want to follow the lead of the first ComputerTowns by jumping right into an experimental operation. If you prefer a solid structure, lack experience, or need equipment and funds, devote a certain amount of time to planning. Do be forwarned that due to their informal nature, ComputerTowns often take on a life of their own. Plan what you would like to see happen and adjust the plans as things develop.

Five key elements evolved during ComputerTown experiments in the Menlo Park Library and other local sites. If you intend to take a structured approach to the ComputerTown model, consider the following ComputerTown ingredients in your plans:

- o A ComputerTown Mayor
- o Two Mayoral Assistants
- o Access to at Least One Microcomputer
- o A Friendly Public Access Host Institution
- o Local Newspaper Contact

Let's take a look at them individually.

A. The ComputerTown Mayor

Every ComputerTown needs a "mayor." This is the person in charge of it all, the person with "vision." It would be helpful if the ComputerTown mayor were computer literate from the outset, but if not, he or she will quickly learn. The only important prerequisite for a ComputerTown mayor is commitment.

The ComputerTown mayor is in charge of administration and organization. With a finger on the pulse of all ComputerTown happenings, the mayor is also an ace communicator. "There will be a ComputerTown Playday at Johnson School Multipurpose Room on Saturday, February 18th, from 10 a.m. to 3 p.m.," the mayor might announce at a Town Meeting. "Call me for further details. Do we have any volunteers?" When the big day arrives, the mayor makes that extra run to the hardware store to pick up the electrical plug converter and later passes the hat for donations.

If the ComputerTown has no permanent headquarters, the mayor's own home could be a temporary base of operation. The mayor could install a special telephone for interested callers, or offer his or her own existing number for the calls. The mayor might rent a post office box for the ComputerTown mail, or offer the garage for storage. When the group finds its permanent site, the mayor takes charge of organizing operations.

Energetic, committed, willing to role up their sleeves when there's work to be done, ComputerTown mayors must also know how to delegate responsibility among ComputerTown citizens. A good working rapport between the mayor and other volunteers is very important, especially as ComputerTown begins to grow.

B. Two Mayoral Assistants

The ComputerTown mayor should ideally be supported by at least two "mayoral assistants." One or both should be computer literate and willing to teach, especially if the mayor is still learning about the technology. At least one assistant should have access to a computer and be willing to take it to ComputerTown activities.

The mayoral assistants (and anyone else who instructs or facilitates at ComputerTown events) must be able to operate a computer in a public situation. Fifteen kids all jostling to play a game on one

computer require someone with the skills of a diplomatic referee. Working with groups of people new to the technology often requires great tact and patience. The assistants must be flexible enough to act as diplomats, arbitrators, and teachers in the public access setting.

The computer literate assistant(s) should be familiar enough with the equipment to know which pieces to bring to a ComputerTown event, recognize problems with the hardware or software, and know what to do if problems occur. In the event of a complete breakdown, for example, the plucky assistant may give a spontaneous lesson in beginning programming without the use of a computer!

Especially if he or she is not computer literate, one assistant should be willing to serve as backup in any capacity. This may mean greeting people at the door to announce that tonight's ComputerTown meeting has been cancelled because the computer is "down" with an undiagnosed disease, making and posting signs, rallying volunteers at the mayor's request, or "shushing" noisy Adventure players in the library reading room.

Like those of the mayor and other volunteers, the assistant's tasks may run from the glorious to the mundane. They must have energy, commitment, and a good rapport with their fellow volunteers.

C. Access to One Computer

Some computer literacy events can actually take place without a computer, but most people will want to see, touch, and operate the real thing for themselves. If you start the project without a computer, field trips to banks, computer stores, automated offices and school data processing departments can keep your new ComputerTown busy while you locate a microcomputer or time-share terminal to use on an occasional basis. There is probably an individual or two in your town who would be willing to bring a personal computer for a show-and-tell meeting. You can build from there. Meanwhile, the important thing is not to wait until your group owns several computers. Start now. The rest will come in time.

D. A Friendly Public Access Host: The "Town Hall"

A ComputerTown "Town Hall" has two major functions: as a contact point for information, and a gathering place for activities.

A post office box or the address and phone number of one of the members will serve admirably for your brand new ComputerTown's information contact point. If you use a private address, try to find someone willing to provide mail and phone headquarters for six months to a year. Be aware that calls and letters will continue to arrive there even after your ComputerTown has established its own permanent address.

A private residence would serve as an adequate site of activities if nothing else is available, but a public facility would be much better. As you search for a suitable public access host site, examine the sort of events and activities you want to present. Evaluate traffic, security, supervision, time schedules, and any other appropriate considerations. Once you have carefully assessed your needs, consider the public access sites available in your community. Narrow the choices down to those which seem best suited to ComputerTown's needs, and ask for permission to conduct events there.

Chances are, you will find more than one suitable and willing ComputerTown host. If so, all the better! Some sites are more suited to certain groups and activities, so don't hesitate to work with more than one ComputerTown host. Adult groups, for instance, may function best in an auditorium or seminar room. Children need a friendly place to let off a little steam. Check your local laws and regulations on room capacity and responsible adult-to-child ratio. These laws vary from county to county. For small children, the elderly, or the handicapped, steep stairs might be a problem. Computers, of course, require many electrical outlets and relatively consistent power, so that would be a prime consideration in any prospective ComputerTown site.

Be sure to give the hosts full credit and publicity for their participation in any event. Distinguish between "joint events" and events put on by ComputerTown at the host's facilities. Joint events should have dual billing on posters, announcements and other publicity. Volunteers and staff from both ComputerTown and the host will need acknowledgement and thanks for their efforts. Grateful recognition will ensure that they will look forward to working with you again.

E. Local Newspaper Contact

If people know that they are invited to learn

about computers at your ComputerTown, they will come. Your best message carrier is the local events calendar of your home town newspaper. Plan your event two to three weeks in advance and call the newspaper with the pertinent information: what, where, when, who, for whom. Computer literacy is hot news for the 1980's, so ask for top billing and you are likely to get it. Additional publicity through a few well-placed posters in book stores, computer stores, community centers, schools, and various bulletin boards and kiosks around town will more than likely cause your meeting room to overflow.

Once you have finished the planning stage, there's nothing to it but to do it!

Each ComputerTown grows from the resources available to its founders and responds to its community's needs. The following sections describe events, activities, and projects successfully undertaken by ComputerTowns so far. As you read, choose a few that seem within your grasp, considering the resources presently at hand. Starting with these, add new activities as your ComputerTown population grows.

No matter how eager you may be to get rolling, remember to take a sensible approach to the amount of staff and effort your plans will require. There is no need to start big. A few carefully scattered seeds will naturally grow. If you schedule one afternoon event each quarter, for instance, your ComputerTown has begun. Encourage those who attend your first event to help organize future activities. Almost before you know it, you will have a flourishing ComputerTown.

Chapter III
The Gentle Art of Offering Events

A ComputerTown event lasting one day or less is an ideal way to introduce the fundamentals of computer literacy to beginners. A one-day event has several functions:

1) It provides many people with their first introduction to computing and computer literacy.

2) It facilitates this introduction in a non-threatening environment, and requires no further commitment on anyone's part.

3) It puts ComputerTown volunteers in contact with others who would like to learn, teach, or organize future activities.

David Tebbutt, of ComputerTown, UK, offers these insights into the gentle art of conducting an introductory event:

"The important thing is to have fun and not to force the technology down people's throats. Let them become familiar with the machines by playing with them and talking to other people at ComputerTown. If anyone asks for more information, by all means talk things through with them, but in my view the whole thing should be at the visitor's own pace. I regularly give people a short introduction to the principles of programming and lend them a self-instruction course so that they can learn in their own good time. Other members of my group introduce visitors to the principles of operating the machines and after a suitable introduction will probably recommend appropriate reading for further information.

"You see, ComputerTown is a pretty free and easy affair with the visitor learning at his own pace. We find that children and adults are quite different in their attitudes, with children being happy to learn by experimentation and discovery whereas adults find this process a little unnerving at first. Adults also sometimes feel a little embarrassed at participating in ComputerTown activities when there are so many kids around who are clearly quite knowledgeable about computing. I can only suggest that if this is a problem in your community then you should perhaps hold some adult-only sessions."

A. Introductory Events

The following list of events held jointly by ComputerTown, Menlo Park and the organizations mentioned, illustrates a wide variety of scope and content. Feel free to recreate them in your own community, and don't be reluctant to try new ideas of your own.

- Herbert Hoover Boy's Club, East Menlo Park, California. ComputerTown volunteers carried machines into this lower-income community center and provided about forty youths with hands-on access to microcomputers.

- Sequoia School District, Menlo Park, California. ComputerTown assisted with a Math/Science Day that doubled as an integration event for two hundred and fifty kids in grades five and six. ComputerTown was the major source of equipment and software for the event.

- Armstrong School, Ladera, California. ComputerTown carried microcomputers into a classroom of eight kids at this school for the learning disabled.

- Ormondale School, Portola Valley, California. ComputerTown helped augment a Media Center Computer Day for kids and parents, providing software and machines for over sixty visitors.

- Learning Faire, Peninsula School, Menlo Park, California. For two years running, ComputerTown personnel helped set up and design a large hands-on microcomputer area as part of the school's annual Learning Faire. Both years, approximately five hundred fairgoers used the microcomputers.

- Street Fair, Menlo Park, California. The city's annual Street Fair included a ComputerTown table, offering about one hundred people a chance to use one of the several different kinds of microcomputers provided by the project. Portions of ComputerTown's activities that day were filmed for the television program, "Don't Bother Me, I'm Learning."

In a six-month period, ComputerTown contacted

nearly 1000 people at the events described above, plus additional hundreds at workshops, classes, and library open access events. You, too, can reach out to a large number of people in your area. Start with a few of these suggested events or create your own and let the momentum that develops tell you what to do next.

B. Special Workshops

Special workshops on specific themes will enhance the scope and quality of your computer literacy activities. ComputerTown, Menlo Park supplemented its hands-on introductory events with the following workshops.

- Creativity Workshops: ComputerTown, Menlo Park offered "Kid's Creativity Workshops" at the library. These worskshops let kids explore the worlds of fantasy and imagination with or without the use of a microcomputer. They became experiments in alternative ways to integrate kids and computers into the library setting.

  A typical workshop of this kind would begin with one of the many versions of "Adventure". Once the kids had a general idea of how the game was played, facilitators would ask them to start the game again, without outside help, so that the kids could learn to use the computers independently. As the play continued, facilitators would suggest that the players create paper and pencil maps of locations, to encourage an awareness of the network structure embedded in the game.

  At ComputerTown, Menlo Park, these computer games were augmented by verbal fantasy role playing games where the kids were encouraged to explore an alternate cave-like structure. In the verbal games, they had to rely on map mapping skills as well as decipher a number of verbal clues.

  These fantasy games and active fantasy/imagination exercises provided a natural bridge between standard library programs, such as story hours, and the ComputerTown activities.

- Family Days: While many activities at the Menlo Park test site were geared toward adults or children, special "Family Day" events were also presented, in which people of all ages were encouraged to explore the technology together. "Family Day" events provided a unique setting in which the more adept children had a rare opportunity to teach the grown-ups something about computer technology.

- Computer Workshops for Women and Girls: ComputerTown staff observed that only about fifteen percent of those who came to the library site to use computers were female. In order to encourage more women to become aware of the availability and potential of the technology and get involved with the ComputerTown project, a special workshop entitled "Computers for Women and Girls" was held at the Menlo Park Library. With the help of a local women's resource group, who pitched in with publicity and volunteers, the workshop was a success. Some fifty visitors, most of whom had no previous experience with microcomputers, were relaxed and eager to learn in the non-threatening environment.

C. Working with Volunteers

Volunteers are the backbone of a successful ComputerTown and successful ComputerTown events. In every community, there are plenty of people who are willing to give time to an exciting project that provides community access to computers.

Willing volunteers require a structure for their efforts. They also require positive results and feedback from their work. After all, success is their only payment!

Try to assign each volunteer a job appropriate to his or her abilities. People with no computer experience can help organize, post notices, or be hosts at the events. They will pick up computer skills just by being around, but you can offer an orientation class to volunteers to speed up the process. Beware of the person who volunteers to attend classes about computers but frowns when you ask for help with clerical or other non-computing areas. Some "volunteers" are just looking for free job training.

If you expect commitment from volunteers, clearly define your needs. Make a list of tasks which could be done by volunteers. Include the specific skills required and the name of the staff person in need of help. If at all possible, appoint one person to be volunteer coordinator. This person can make introductions, rally people for one-time events, schedule people for on-going functions, and make sure each volunteer is

recognized and thanked for his or her contribution.

Be specific when asking for help: "I need people to act as hosts for newcomers at Family Night next Tuesday, between 6:30 and 8:45 p.m. They will greet people at the door, show them where to find the computers, books, software, and sign-up sheet. They will also tell people about upcoming activities and introduce them to the guest computer consultant. You need not be computer literate to handle this job. Please sign up with the volunteer coordinator as soon as possible, so we can finalize the schedule by the first of the month."

People with computer experience have one key ingredient: "know-how." They can serve as consultants, tutors, mentors, maintenance crew, and sources of contact with commercial organizations. Let them know how valuable they are to ComputerTown.

Here are a few pitfalls to avoid when working with computer literate volunteers:

1) Remember that microcomputers are new and take a little getting used to if someone has only worked on large, or older, computing systems. If you have microcomputers at your ComputerTown, suggest that "mainframe" people spend a little time with the manuals for each machine before they begin to teach. This will insure that the information they offer beginners is accurate for little computers.

2) Knowing how to do something is very different from knowing how to teach it to someone else. Try to identify the sensitive and natural teachers among your volunteers and use them effectively. Don't be overly impressed by someone who knows a lot but can't get it across. This problem sometimes occurs when a person has a moderate grasp of computing techniques, but has trouble handling group teaching situations. One solution could be to team these individuals with more experienced teachers.

One final note of caution: burn-out is a common malady for both volunteers and staff. Try not to take on projects which out-pace the available "people power." Don't build an on-going project around a single volunteer without considerable forethought and discussionn. Let

major projects unfold slowly and build on the enthusiasm in your community.

Chapter IV
Typical ComputerTown Events

ComputerTown events don't just happen. Arranging a meeting space, collecting volunteers, deciding what sort of activities to offer, rounding up equipment and making sure that it gets there and back in working order, dealing with electrical outlets, taking care of publicity, and seeing that it all runs smoothly when the big day arrives--a myriad of details require careful planning, coordination, strong nerves, and a certain amount of muscle.

For an inside look at what goes into the process of planning and conducting a ComputerTown event, this section will profile volunteers' experiences in conducting four different presentations: a "Business Night" event, a presentation at a community "Learning Faire," a word processing study group, and a conference on computer literacy.

A. Profile 1: Business Night--Getting It All Together

While it was one of the most well-attended workshops put on by ComputerTown, Menlo Park, the Business Night workshop received minimal advertising. A few modest announcements went into local papers and $20.00 worth of flyers were distributed about town. The large attendance came as a surprise to both ComputerTown and library staff members. No one could remember a time when a brief, drop-in activity had drawn so many people to the Menlo Park Public Library. One contributing factor was undoubtedly its timely subject matter. Another factor makes this event especially worthy of a closer look: Business Night was very carefully orchestrated.

The following memorandum, passed among the staff who planned the workshop, shows the kind of attention to detail which goes into the planning of a successful ComputerTown workshop. If you are planning a ComputerTown event, use the points in the memo as a model for an "Event Checklist" of your own. Expand the checklist as your ComputerTown grows. It will keep volunteers sane in the face of threatening chaos, and serve as a guide to future generations of ComputerTown volunteers. Copies of written memoranda such as this, filed for the benefit of future ComputerTown members, will also make their work load a lot easier.

Sample ComputerTown Event Memorandum

To: ComputerTown Volunteers
From: Ralph
Re: Business Night at the library

I've contacted several organizations with very good results so far... IBM's General Systems Division will be delighted to attend. They'll bring their desktop computer with a printer. They will have a CAI course on how to operate the 5120, and a payroll package.

A representative of the Radio Shack Computer Center in San Mateo will also attend with a TRS-80 II. He's not sure what software he will bring. Someone from Heathkit's Redwood City store will come, with the H89 "all in one" machine with a printer. That will make a great comparison to the IBM 5120!

The Digital Deli of Mountain View will bring the Intertec Superbrain with a Spinwriter (their own package 8995 deal).

Hewlett-Packard said they'd like to send someone, but will have to get back to us. I expect they will show up with one of their desktop machines. I intend to ask them to bring a plotter if possible.

Ramon's Apple with Visicalc gives us six and probably seven systems from as many makers. A very educational variety!

It also means a few practical problems... A safe estimate is fifteen grounded plugs needing outlets, from which they will draw as much as fifty amps. To avoid any chance of an embarrassing blown fuse, we ought to provide four 15-amp circuits. How do we get in touch with the Civic Center's electrician?

We'll have seven exhibitors plus two or three of us. We should have name tags which will help the visitors know who can answer a question and who is just another looker.

Getting all the people and machines in the room needs thought. What if we draw the wagons in a circle with the systems facing out, the attendees circling around the edges and the exhibitors in the center?

Give me a call if you need help with the advertising. Should we invite the "Recorder" to send a reporter? Just a reminder: we need to have the media invitations and press releases out by the 17th. Who will contact the business groups in the area? And what about the electrical layout of the library? Where will we get sufficient extension cords and sockets? We'll need to arrange for tables and other paraphenaila like names tags. We will also need to deal with flyers and follow-up calls and letters to confirm and inform exhibitors. Please drop me a memo listing any other points that will need to be covered.

Regards,

Ralph

Business Night Continued--Working with Guests

When inviting outside people to be "presenters" at a ComputerTown event, a personal phone call and informal, follow-up letter are appropriate. The letter reproduced below went to guest presenters who had committed to attend the Business Night event. Feel free to use it as "boiler-plate" for your own invitations.

Memo to: Participants, Business Night at the Menlo Park Library,
Sponsored by ComputerTown _____
Day, Month, Year

Dear _____,

Thanks for agreeing to participate in Business Night. You'll find enclosed a map and a copy of the flyer we've sent out to the business and professional people of Menlo Park. This memo covers the points you should keep in mind while preparing your presentation.

The aim of Business Night, as with all ComputerTown projects, is education--in this case, the education of the Menlo Park business community in the practical benefits that computers could bring to their work. Education is the essence of ComputerTown, but its spirit has always been the idea that computers are fun, so this won't be a heavy conference but a casual evening among friends.

The event will take place in a conference room that is only about 16 by 22 feet in size. Since this is our first such venture we didn't aim any higher; if we are overcrowded we'll be pleased, and will immediately begin planning a better show in bigger surroundings.

The physical limits do bring up two considerations. First, plan to bring only one compact system, and to have only one person in attendance (although you will want to have a helper when setting up and tearing down). The room will be ready at 6:00 pm; try to arrive about that time. We all have to be out the door by 8:59 sharp, so plan to begin tearing down at 8:45 pm.

Electrical power may be in short supply. The room is served by a single, 20-amp circuit. We hope this will be enough but we want to be prepared in case it is not. During set-up we will assign systems randomly to "A" and "B" groups. If the power is inadequate we'll alternate running the printers of the A and B groups each half-hour. If there still aren't enough watts then we will be forced to run the systems themselves in half-hour turns, beginning at 6:45.

We have some multi-socket extension cords but more could be useful. Do bring handouts or brochures. Handing out computer-printed material is a great idea, but keep the power problem in mind and print up a batch beforehand. There may be a representative from the local press, so you might polish up your one-line answers to the question "what's a computer, really?"

With everyone's cooperation Business Night can be a great success and lead to more of the same. See you then.

Regards,

Elaine Williams
Event Coordinator

Business Night brought over 200 people to the Menlo Park Library. A similar event, in your area, should be equally well attended.

B. Profile 2: Computers at the Learning Faire

Another successful ComputerTown, Menlo Park event took place at the Peninsula School's annual Learning Faire. In the following article, reprinted with permisssion from Compute Magazine, author and ComputerTown volunteer David Thornburg describes the event.

Computers At The Learning Faire
by
David Thornburg

Each year the Peninsula School in Menlo Park, California conducts a "Learning Faire" for children, parents, teachers and neighbors. This year the Faire was held on May 4 and was attended by more than a thousand people who came to enjoy the food and music, learn about solar energy, make kites and candles, and to take part in myriad other activities including playing with computers. While the computer activity was a small part of the overall event, it was an enjoyable, if exhausting, task for those of us who put it together.

The computer activity was planned by the Peninsula School Computer Project, Computertown, USA! and Innovision. We intended to present a computer activity which was smoothly integrated in spirit with other activities at the Faire including leather work, face painting, and events naturally suited to a fair conducted in a semi-rural environment on a beautiful spring day. The goal of the computer activity was to provide an opportunity for people of all ages to learn about computers and play games without feeling intimidated by these machines. This activity was to be used by everyone from computer experts to people who had never before seen a computer of any kind.

There were three major tasks which faced us as planners of this event. First, we needed to have enough hardware available to give every interested person a chance to use the machines. Second, we needed software which was appealing to boys and girls, young and old alike. Third, we needed enough volunteers to help people with the computers and to keep everything in working

order.

Since we could only provide eight computers ourselves, we sought additional support from the outside. Through the generosity of Commodore, Atari, and Radio Shack we were able to have more than twenty five computers running at one time. This allowed us to run one program per machine--a blessing when one considers the time spent just loading tapes.

The software included stimulating games of many types, with the exception that no "arcade" type games were used. Our reluctance to use arcade games was based on several factors. First, the majority of arcade games with which we were familiar were sufficiently "addictive" to certain children (primarily boys) that we could envision problems in providing easy access to the computers. More importantly, these games generally require very little cognitive activity on the part of the player, and were thus not considered appropriate for incorporation in a "learning" fair. The most convincing argument against the use of these game, however, is that we were able to find a tremendous number of games which were fun, mentally stimulating, appealing to people with little or no previous exposure to computers. This software included adventure games like TAIPAN and QUEST, logic games like BUTTON BUTTON, BRAIN BUSTER, QWERT, and MOTIE, simulations like LEMONADE, word games like WORDSEARCH, and creative environments like DRAW, just to mention a few of the programs which were in use that day.

We received tremendous assistance from the many volunteers who kept everything running smoothly. Volunteers included interested parents and several local computer professionals who enjoy working with children. This support allowed us to set aside a few machines for visitors who wanted to learn a little about computer programming. We also set aside two computers for the exclusive use of pre-schoolers.

In addition to the mixture of Commodore, Atari, Apple, and Radio Shack

computers, we had several "outdoor" computer activities as well. Visitors to the computer area were treated to the beautiful sounds from two Alpha Syntauri computer music systems which were set up on Apples out under the arching oak trees. Nearby, children played with several "Big Trak" programmable toys which were set up on special roadways outside the computers rooms. Several of us have found that these toys (which behave similarly to a LOGO "turtle") are very well suited for teaching programming concepts to youngsters. (In case you wondered, Big Trak is a motorized device with a keyboard that accepts programs up to sixteen steps long. Once the program is entered, the user presses GO and watches the machine move along a path defined by the program.)

Next to an information booth, we had continuous showings of "Don't Bother Me, I'm Learning," the film on the use of computers in schools.

The smooth mixture of all these activities blended in with the leather work, crafts, music, food, and other activities of the Learning Faire to create a truly magical environment.

For your first activity, you may not want to start with something as big as participating in a major community event, such as the one described above. Before doing so, carefully assess your resources and people to see if you can handle the planning and organization required. If you do tie into or help create a major community opportunity for people to access computers, you will get the advantages of touching base with lots of people, quickly, and local media exposure. These items will help you tell people of your project and get things off to a flying start.

C. Profile 3: A Word Processing Study Group

ComputerTown study groups offer people a chance to explore areas of specific interest, such as word processing or other computer applications software, various types of games, or problems such as how to choose a personal or small business computer.

ComputerTown, Menlo Park offered its support and facilities to a study group on word processing, organized by David Warren. The study group had no designated teacher. A general consensus among members determined the course of study and exploration. The following report by David Warren reveals the sort of organizational considerations study group participants must take into account:

Word Processing Study Group
by
David Warren

The purpose of the Menlo Park word processing study group was to allow participants to help each other identify questions about word processing and find intelligent answers. The group began in August, 1981, and met once a month for the next quarter year. Most participants were interested in getting into electronic word processing but knew little about what was needed in the way of hardware and software. Group members were by and large interested in small-scale applications, such as home or small business use.

The group found resources in the community to help them come to sound decisions on acquisition of hardware and software. Individuals who were already using microcomputers for word processing as well as local computer store owners and personnel seemed to welcome the opportunity to talk to the group about the many options available. Whereas it certainly is possible to talk with computer sales people by simply visiting one's neighborhood computer stores, there's something about getting the same information as part of a public group that tends to soften the impression of being subjected to a sales pitch. What might come across as a strong sales pitch to a lone individual in a computer store gets presented in a more neutral and objective way to a community group.

If you set up a similar group in another community, you will soon find numerous potential speakers. The computer store connections are as close as your yellow pages. Finding experienced word processing users is a bit less straight-forward, but in our experience, meeting notices in the newspaper and contacts with computer store personnel turned up leads to writers, editors, and others who were most happy to lend a hand. One contact would lead to another.

Speakers have talked about or demonstrated Apple, Vector Graphics and S-100 component hardware systems as well as the WordStar, Magic Wand, and Memorite III word processing programs. They have demonstrated NEC and Diablo printers and talked about less expensive options.

Whether such a study group can or should be a stable and continuous activity is still an open question. Those who participate in such a group will eventually either become computer owners themselves, with no further reason to participate in an acquisition group, or possibly lose interest for one reason or another (they decide against purchasing a computer, for instance). In either case, the normal course of events is for the group to shrink, and unless some stable method is found to bring new people into the "front end," the activity will disappear, possibly leaving new generations of potential users out there in the community asking themselves, "Which computer should I buy? And which word processing programs?"

In this age of bureacracy, organizations sometimes spring up to fill a human need and then develop an independent "right to life" which is not always justified.

The members of the word processing study group, having met for four months, found that they had fulfilled their original need: to learn about word processing. What a great success! Why spoil it by turning the continuation of the group into a chore for its original organizers?

Computing study groups, like the technology they

study, are tools for people. They should be turned on and run as long as they are useful. When their job is done, turn them off! If we treat ComputerTown study groups this way, we will each feel free to start one whenever it is needed. We learn what we can from our neighbors and disband when our knowledge has been shared.

The only legacy a ComputerTown study group need leave is computer literate people. If some choose to share their know-how with newcomers, fine. If not, move on to something else.

D. Profile 4: A ComputerTown Conference

A well publicized ComputerTown conference is likely to bring out 200-500 people eager for computer information. Be forewarned, a conference of this size is a lot of work, but it can be rewarding in terms of exposure and income, if managed well.

Holly Anderson, founder of ComputerTown, Barrington, kicked off her computer literacy efforts with a conference. Here is Holly's account of her experiences:

ComputerTown, Barrington! Conference

by

Holly Anderson

Barrington, Illinois

March 13, 1982

Over 500 people attended a conference on the classroom and home uses of small computers at Barrington High School to hear noted author and educator LeRoy Finkel call for the establishment of an Illinois Computer-Using Educators (I-CUE) group.

"The Computer Challenge," as the event was billed, was designed as a means to disseminate information about the availability of hardware, software, and services relating to the uses of small computers. Although the conference was primarily designed for classroom educators and school administrators, about a quarter of the workshop sessions were on topics of general interest to those who own or are contemplating owning a microcomputer for personal use.

Following Mr. Finkel's talk, each visitor attended as many as four one-hour sessions conducted by some of the midwest's most knowledgeable experts in the fields of microcomputers for educational and personal use. Dr. Woody Sparrow of the Scarsborough (Ontario, Canada) Department of Education gave a very popular talk entitled, "An Apple a Day May Make Johnny Sick," discussing some human considerations necessary for successful classroom instruction with microcomputers. Other sessions covered topics ranging from computer music, graphics, and educational software to word processing and data base management. With over forty subjects offered, many attendees found selection difficult.

Response from conference attendees was very positive. Many ideas were exchanged, and we are hopeful that one result of the conference might be the formation of an Illinois Computer--Using Educators organization, such as exist in other areas around the country. It is clear that the microcomputer is becoming an important part

of the educational process in Northern Illinois.

Nearly 100 pre-registrants had no affiliation with schools, according to Kathy Hutchinson, Registration Chairperson for the event. She explained that the content of the conference was determined in part by interests expressed by those who sent in registration forms during the month prior to the conference. "Yes, we used a small computer for registration management and coodination," Mrs. Hutchinson confirmed. "The entire event was planned in less than three months, and you need all the help you can get to accomplish that!"

Small computers such as the Apple II played an important part in the "behind the scenes" planning of the event. They were used for word processing in developing announcements, press releases, and letters; data base systems were used to keep track of volunteers and registrants; and the conference budget and other financial tasks were also managed on computer.

The event was sponsored by ComputerTown Barrington, a non-profit community service organization formed to further the uses of computers in schools and homes. Helping ComputerTown organize the conference were two educational reseach and consulting groups: Project Micro-Ideas of Glenview and the Institute for Educational Research.

Even if your ComputerTown project is just starting out, try your hand at an event or two, using the hints in this chapter as a guide. Perhaps the members of your ComputerTown project feel comfortable with testing the water by putting on one event this year. Terrific! Plan it carefully, invite the community, then sit back and see what happens. Chances are, your ComputerTown event will achieve even more than its primary goal: to introduce the community to computers. Don't be the least surprised if you discover, as ComputerTown, Menlo Park volunteers did, that a well-attended event is a terrific magnet for prospective ComputerTown teachers, volunteers, students, and community resources to help your new project grow.

E. Typical Questions at ComputerTown Events

Since the whole point of a ComputerTown event is learning, it only stands to reason that a lot of questions will come up as people explore computers for the first time. The following lists contains questions volunteers should be prepared to answer at ComputerTown events.

Try to form a brief answer to each question as you read. If the answers come easily, you are well prepared. If you have a difficult time getting through the list, see that your project has access to someone who can assist you during question-and-answer sessions.

The following questions were asked at a ComputerTown event attended by over seventy visitors.

* What is ComputerTown?

* Do you have anything for sale?

* Which of the small color computers should I get for my kid as an educational toy?

* How many kinds of computers are there? How do I know which one to buy?

* What is 16K, 32K, 48K? How do I know which is best for me?

* When I read about computers in magazines and books, I don't understand the jargon. How can I learn the terminology?

* If I were entering the job market in this area, where would I go to get up to speed about computers?

* What career opportunities would be facilitated by my knowing about computers? How to I go about exploring a career in the field?

* What are computer languages and how do they work? What is the difference between BASIC, Pascal, and the other languages I hear about? Which would be most useful to learn?

* What is the job of a program? How does it work? Would it be difficult for me to learn to program?

* Are there compilers for these machines?

* What is an operating system?

* Contrast the different machines' operating systems.

* Can I lease or rent a machine?

* What good is the machine beyond playing games?

* What does it cost me to get a machine?

* How does the Atari 800 compare to other machines? How does Brand X compare to Brand Y?

* Can I set up a machine so that it will search the Dow files and extract data on the stocks in my portfolio? How much will it cost? Will any machine let me tie into data bases like the Dow?

* How does a machine store data? Where does it store it?

* What is the difference between hardware and software?

* What are the cost tradeoffs in getting a computer? When do I know I can buy one effectively?

* When do I know that I need to move something onto computer that I have been doing by hand?

* Why does a program take up space in the computer?

* Will the machines run Fortran, Cobol, and so on?

* Why should I buy one now? Why not wait for the newer machines?

* How can I justify spending XXX dollars for the computer, knowing that I will essentially throw it away in a few years?

* What will be the resale values of these things in a few years?

* What about assemblers/linkers for these small machines? What about software development tools?

* Can I put my software into a circuit (EPROM) so that it becomes part of the machine?

* Kids are beginning to use these things. What's going to happen to their education if they spend all their time on these devices?

* How do I know I am getting good software?
* Who sells software?
* If I read a magazine such as Byte, how can I tell from the advertisements what the software really does?
* Is there a beginner's magazine or book?
* Where are the User's Groups in this area?
* If I have a complex problem in terms of putting hardware and software together, who can help me?
* Should I plan on doing my own programming, or can I get by without knowing how to program?
* What is a "turnkey" system?
* Will things become standardized in the future?
* How often do microcomputers break down?
* Can I a broken machine fixed without difficulty?

F. How Do I Select a Personal Computer?

Since many who attend your events will be interested in buying a computer of their own, your ComputerTown staff will often be asked for advice on choosing which one to buy. Feel free to help people but don't set yourself up as a free consultant under the ComputerTown banner, and remember that ComputerTown does not endorse any specific brand names.

In his article, "How to Select a Personal Computer" ("Recreational Computing," July-August, 1981), David Thornburg offers invaluable suggestions to consumers in search of their dream machines:

"Hey! You know a lot about personal computers, which one should I buy?"

"If I had a nickel for each time I've heard that question, I'd be able to buy another computer myself," comments Thornburg. In answer to this ever-popular question, he has improvised a step-by-step procedure aimed at finding the perfect computer to suit an individual's specific needs:

1) Take out a big sheet of paper, labeled "Applications for My Dream Machine." List every single function your would like your ideal computer to serve. Will you use it for playing games, education, electronic mail, access to news wire services, personal finance, word processing, programming, mathematics, hobbies, home management?

Whatever it is, list it here.

2) On your second sheet of paper, specify the features your computer will require for each application you have selected in list number one. Be sure to consider display, keyboard, joysticks, printers, phone connections, memory or floppy disk drives, etc.

3) Stumped? Don't panic! Take your list in hand and turn to:

- Your local ComputerTown group
- Computer fairs and expositions
- Computer magazines
- Manufacturers' catalogs

- Users groups
- Computer stores

It's no accident that the computer store ranks last on David Thornburg's list. A given store will only carry a limited line of computers. The wise consumer will begin the selection process with a far wider and less biased base of information.

4) Having selected your dream machine, the author suggests these final details: "Be sure the price quotation you receive includes everything you want--software and hardware. Ask about help in getting the system set up. Make sure the dealer is willing to support your purchase. Find out about warrantees, local service charges, and anything else which comes to mind."

Thornburg's article provides an excellent background for one of the most frequently asked questions at ComputerTown events. Use what he has outlined as a model to organize the information you will need to answer these frequent inquiries. You will no doubt expand upon this outline as you look about your community for resources and materials on the personal computer revolution.

Chapter V
Courses and Other Learning Activities

A. ComputerTown User Validation

Once word of your ComputerTown begins to get around locally, your hands may be full with newcomers eager to learn to use the machines. To give some idea of what you might expect, an average of eighty newcomers appeared at the Menlo Park Library test site each month. Kids were especially eager to get their hands on the new technology. Often they would rush in, sit breathlessy at a machine, and shout, "Hey, how do you work one of these things?"

It soon became clear that an organized procedure for introducing eager visitors to the rudiments of computer literacy was becoming very necessary. The process came to be called "Computer Validation." The notes to follow, based on the needs and experiences of ComputerTown, Menlo Park, are geared toward the special conditions of a library-based ComputerTown; however, they can easily be adapted to suit the validation needs of ComputerTown projects in most any setting.

While the ComputerTown philosophy is based on informal self-teaching, a first-time visitor will need to be taught the fundamentals from someone who is experienced with the technology. These instructions should include how to turn the computers on and off, load and run software, clear the machines to make way for new programs, and understand commands. A visitor's first introduction to the ComputerTown environment should also include an explanation of facilities and resources, as well as procedures for using them.

A current card from any library and a willingness to learn were the only requirements for validation at ComputerTown, Menlo Park. When visitors had been taught the basics described above, the backs of their library cards would be stamped, "COMPUTERTOWN, USA!". From that point on, they were free to use the equipment and software on their own. Since validation was not limited to Menlo Park Library patrons, the experimental project validated library cards from as far away as Canada, New York, and North Carolina. As a result, librarians from other libraries began to notice the ComputerTown validation stamps and seek information on how to bring ComputerTown to their own facilities.

The validation procedure at ComputerTown, Menlo Park began with filling out a validation form. The

next step was learning to turn on the machine (in this case, a Commodore PET). A cassette tape with a short loading time would be selected for loading. If the tape drive was of the external variety, it had to be connected to the back of the PET, and novices were cautioned to connect or disconnect the tape drive with care.

Next came the actual LOADING process. ComputerTown, Menlo Park trainers found it helpful at this point to explain the blinking "cursor" and the necessity of hitting the RETURN key. The users were then prompted by the computer to press the PLAY button on the tape drive.

The ensuing waiting process, although relatively short, often seems endless to youngsters eager to start slaying dragons and collecting treasures. During this time, trainers would explain the sequence of steps the computer was performing, such as SEARCHING, FOUND, LOADING and READY, to keep impatient minds busy during the slow LOADing process.

Before instructing visitors to type RUN in response to the READY prompt, instructors would stress the importance of rewinding the tape, a necessary procedure which seemed to be one of the most difficult for new visitors to remember. Trainers added relevance to the point by explaining that a tape stopped in the middle is subject to fingerprints, which often cause frustrating load errors.

After several minutes of play, first-time visitors stopped the program by hitting the RUN/STOP key, and cleared the screen by pressing the SHIFT and CLR/HOME keys. By learning to LIST the program, they could see that the game was still there even though the screen was cleared. To convince them even further, they were asked to type RUN again, and their game would appear. When they were ready to try a new game, they would type NEW to erase the program already in memory.

The final step would be to LOAD a different tape without prompting, if possible. When this was accomplished, cards would be stamped, and the newly-validated computer-users would be free to use the ComputerTown facilities whenever they wished.

Each ComputerTown site may need some form of validation procedure for first-time users. The procedure at each site is likely to vary to match available equipment, resources, and the computer experiences being offered. The validation process at

the Menlo Park site provides a starting point that can be altered to fit other local situations. Feel free to modify what was done at Menlo Park to fit the needs of your site.

Software: Use of Games

The kind of software your ComputerTown offers will have a direct impact on the physical environment, especially in the case of arcade games. If you decide to offer these games at ComputerTown, keeping the computers on which they are played separate from other people and activities is one solution to the inevitable noise problem. This is especially important in a library setting. Scheduling a regular time for arcade games at ComputerTown will also help. This offers people a chance to play the games, while avoiding the disruptions that may occur when others nearby want to program, study, or do other activities which demand peace and quiet.

There is often a controversy about the educational value of computer games. Computertown Project Director Ramon Zamora offers this response:

Many commercial game and simulation software packages contain a rich set of implicit learning activities for younger children. To use the software, the children have to master not ony motor skills but verbal, mathematical, visual, and problem-solving skills. Often, the skill acquisition occurs naturally, as the kids play the games.

For example, the large numbers of kids playing fantasy games, such as Dungeons and Dragons, nearly guarantees that several million children will be able to spell the words: Strength, Intelligence, Wisdom, Constitution, Charisma, and Dexterity.

Using commercial packages, an educator can "mine" the package for learning opportunities and coordinate explicit learning tasks with the implicit learning content of the software. The software fosters periods of extended attention span on the part of the student; the educator guides the process so that learning is reinforced.

The crucial step on the part of the educator is to "see" the hidden learning potential in today's software. By looking beneath the "game"

aspect of each software package, one can uncover any number of ways to facilitate the learning process.

In some cases, this may require nothing more than encouraging a child to use paper and pencil to make a map of the maze or labyrinth being traversed. In other cases, especially for those packages that require coherent text responses from the player, perhaps nothing needs to be done. The child is already learning verb-noun relationships and the correct spelling of several hundred words.

The packages that best serve this dual role contain some common elements. The key component seems to be the use of fantasy. The children are drawn to games and simulations that involve them at a fantasy level. While working with fantasy-based material, a child seems capable of absorbing large amounts of data, relationships, content, and structure.

A second important element appears to be the use of graphics. Although a child will use a program without graphics (for example, any of the "Adventure" games from Adventure International or "ZORK" from Personal Software), preferences are expressed for software with graphics. The images do not have to be sophisticated. Crude, low-resolution graphic displays are totally acceptable.

Hidden objects and treasures are another common element of the kids' most-liked programs.

There are other aspects of the popular packages: multiple goals, conflict, use of sound and color, secret passages, puzzle solving, monsters, magic, and the use of unexpected elements are especially noteworthy. Taken together, the key components describe software that is inherently complex from the viewpoint of the user. The complexity may be expressed in terms of elaborate logical puzzles that have to be unraveled or simulated events that require strategic planning on the player's part.

From the educator's perspective, the complexity affords ample opportunities for tying the software to specific principles and content.

Beginning Steps in Programming

Many visitors, both children and adults, will come to ComputerTown to learn about programming. Be prepared with sample programs for beginners to type into the computers. Short, single-sheet programs are just right for first time users.

Scanning the different computer language books will help you locate programs that work well for the beginning programmer's first experience. Educational computing magazines, such as Popular Computing, will also have programs of simple activities such as making your own name flash across the screen. This may seem a bit simplistic to the accomplised programmer, but it is easy for newcomers to understand, brings quick gratification, and children especially seem to love it.

Here is a sample program recommended for beginners:

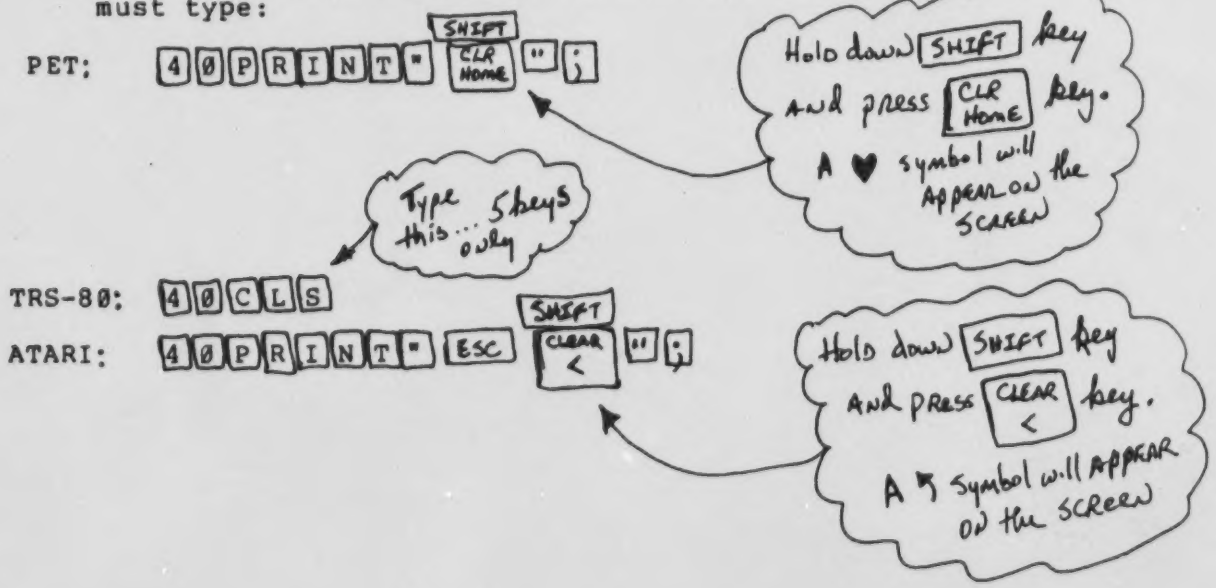
```
10 PRINT "their name";

20 Go To 10
```

This program works equally well on PETs, TRS-80s, and Atari computers. Beginners can type their names or any combination of characters between the quote marks ("). Make certain they put the semicolon(;) at the end of line 10. This tiny program works wonders for young and old alike. On PETs and Ataris, have them type groups of graphic characters between the quote marks to create "instant art."

Here is a second program that beginners can try once they have mastered the two-line program shown above. Do not have new users try this second program until they are successful with the first one. The amount of typing in this next program can be difficult for first-time users. When someone attempts this second program, work with them until they achieve success in running the program.

```
PET                    TRS-80                 ATARI
-------------------------------------------------------------------
10 PRINT "their name"; 10 PRINT "their name"; 10 PRINT "their name";
20 FOR I = 1 TO 200    20 FOR I = 1 to 200    20 FOR I = 1 to 200
30 NEXT I              30 NEXT I              30 NEXT I
40 PRINT "[CLR]";      40 CLS                 40 PRINT "↰"
50 FOR I = 1 TO 200    50 FOR I = 1 TO 200    50 FOR I = 1 TO 200
60 NEXT I              60 NEXT I              60 NEXT I
70 GO TO 10            70 GO TO 10            70 GO TO 10
```

These programs cause the characters that appear between the quote marks in line 10 to "flash" in the upper left corner of the screen. The only tricky part of the programs is the keys the user has to press to get line 40 correct. For the various machines, here is what the user must type:


PET:
4 0 P R I N T " SHIFT CLR HOME " ;
Hold down SHIFT key and press CLR HOME key. A ♥ symbol will appear on the SCREEN
Type 5 keys this... only
TRS-80:
4 0 C L S
ATARI:
4 0 P R I N T " ESC SHIFT CLEAR < " ;
Hold down SHIFT key And press CLEAR < key. A ↰ symbol will APPEAR on the SCREEN

On the PET, a "heart" will appear between the quote marks. On the Atari, an "arrow" will appear. You can see why this program may be a bit complex for first-time users.

From this starting point, people can be encouraged to work with self-teaching materials, to take a class or workshop on programming, or to explore on their own. Additional programs of about the same length often facilitate further exploration.

B. ComputerTown Courses

Once a week, or once a month, offer an open Family Night. Although this is not strictly a class, one or more project staff members should be on hand at the ComputerTown site for about two hours on a regular, scheduled basis to answer questions, give tips on how to use the machines, and provide a point of contact between the public and ComputerTown. The structure of Family Night can be very informal. It can include talking with people from the media, meeting with small groups of interested adults and/or kids, or just working with those who comes in to use the computers.

As time goes on, you might wish to offer introductory or assistance classes on specific software--how to use Visicalc, for example, or what a word processor can do for you.

For the purpose of this discussion, the term "course" will mean a series of class meetings with several students and a teacher. Courses are by no means mandatory for ComputerTown projects, but seem to be very popular whenever offered in a community. Here are some of the forms ComputerTown courses can take:

- Short term ComputerTown courses might meet once a week for two or three weeks, with a total class time of three to nine hours.
- More extensive ComputerTown courses could last six to twelve weeks. Their schedules might coincide with local school calendars.
- Workshops on specific subjects could meet for one day, or over a single weekend.
- A study group would be supported by ComputerTown, but initiated and run by students learning together.
- Mentor programs and peer teaching would involve one-on-one instruction.

Sample Course Titles

ComputerTown, Menlo Park has offered courses entitled:

- "Computer Comfort" (for adults) or "Computer Playshop" (for kids). Validation materials were

presented in these class formats.

- o "Computer Tool Use"
- o "Introduction to BASIC"
- o "Beginning, Novice, Intermediate, and/or Advanced BASIC"
- o "Software Evaluation" (for adults) or "Computer Games" (for kids).

All these above subjects are taught under the umbrella of Computer Literacy.

Curricula

Some ComputerTown teachers plan a structured curriculum and determine specific course objectives. Others spend part of the initial class meeting choosing what the group will study.

At ComputerTown, Menlo Park, for example, a group of adults, ranging in age from 31 to 78, completed at series of classes designed to introduce them to a spectrum of microcomputers, increase each person's ability to communicate about the technology, and help them develop software-evaluating skills.

Working with educational, business, recreational, and personal software packages, the class evaluated each project, using an eleven-point Software Evaluation Form, prepared especially for the class. The group rated each product according to ease of use, quality of program instructions, originality/creativity, error handling, educational value, written documentation, function, presentation/polish, use of graphics, challenge (for games) and overall value.

Experiment with different course offerings and workshops at your ComputerTown. Get people in existing courses to tell you what further courses and workshops they would like to see develop. You can also find people willing to teach about specific subjects, and invite them to use your facilities for the courses.

C. Courseware: ComputerTown Scrapbooks

The recent, fast-paced changes in personal computer technology make it difficult to provide timely information to the growing number of people in search of that data.

The new consumer in this field has to dig through a bewildering array of machines, printed literature, jargon-laden advertising, technical stores, and computer programs to begin to get his or her initial questions answered. Textbooks are outdated almost as soon as they are printed. Several monthly magazines, with readerships exceeding 100,000, now target material for a single computer.

The ComputerTown scrapbooks provide one possible solution to the tasks of:

- Collecting and organizing current computer information
- Presenting that information to a diverse group of beginning computer users/consumers

At the Menlo Park Library site, the scrapbooks have been used as both resource and text material by the general library patron. The books could be found near the table where the computers were located. People were encouraged to browse through the scrapbooks, especially the one on "Computer Comfort," when they had questions or wanted information about the technology.

The scrapbook concept provides a starting point for delivering information on microcomputers to interested individuals. Once the process is underway, the scrapbooks provide a general framework for updating and growing the information base.

Each ComputerTown using the scrapbook concept is encouraged to build its own books, based on the needs of its patrons and locale, and the availability of new information. The initial scrapbooks will evolve differently at each site. How the materials are updated, what is chosen for inclusion or exclusion, and what additional scrapbooks are to be started, will vary from site to site. Please share your original scrapbook creations with ComputerTown International!

Using the Scrapbooks

Scrapbooks are designed to be "created" and "recreated" by their first users. For example, the first step in using the sample scrapbook outline is for someone to locate and make copies of articles and materials that fall into the scrapbook categories.

In some cases, the scrapbook itself, once assembled, can serve as the "text" for introductory workshops on what each site has to offer or beginning courses in "Computer Comfort."

Again, the idea is that each site will use and adapt the scrapbook based on the way it chooses to present computers to beginners.

Sample Scrapbook Outline

At ComputerTown, Menlo Park, five scrapbooks are under development for use within the library setting. The first, "Computer Comfort," presents a set of materials and course suggestions for people with no computer experience. "Computer Comfort" forms the core of the sample scrapbook presented at the end of this section.

The second scrapbook picks up from "Computer Comfort" and addresses the needs of the individual with some computer knowledge, limited hands-on experience with the devices, and often, an expanded set of questions about the technology. This scrapbook is called "Computer Awareness."

The next scrapbook focuses on a person's concerns for the uses of the computer as a tool. Called "Computer Tool Use," the third scrapbook provides a set of structured, hands-on opportunities for the person wanting to explore the use of a computer.

The fourth scrapbook deals with the issue of beginning proficiency in the use of a computer. "Computer Programming for Beginners" initiates an exploration of programming and programming languages. The course emphasizes self-teaching, hands-on introductions to programming concepts for beginning users of the technology.

The final scrapbook contains materials on how to perform routine maintenance of the site's computers. It outlines maitnenance procedures for use by ComputerTown site personnel or selected volunteers. This scrapbook, like the others, does not require a high level of sophistication on the part of the user. In public access situations, the largest number of inquiries comes from people with little exposure to the technology. They need the organization and resource aggregation the scrapbooks can provide, expressed in simple, non-technical terms.

The "Computer Comfort" scrapbook follows the structure outlined below:

Computer Comfort Scrapbook

I. Preface

II. Essential Vocabulary

III. Selected Readings

IV. Course Ideas

V. Site Resources

A. Books (Copy of all card catalog entries)

B. Magazines

C. Available Software

D. A/V Materials

E. Hands-on Materials (for use at computers)

VI. Suggested Bibliography

A. Books (Indicate which are on site)

B. Magazines (Indicate which are on site)

C. Newsletters

VII. Local Resources

A. People

B. Places

C. Classes

VIII. Other Resources/Information

This outline merely suggests how you could go about the organization of a scrapbook. At your location, use the outline as a guide and add or delete items as needed to provide the kind of beginning computer experience that you want to give to people.

D. Peer Teaching

Computer know-how is developed by immersing oneself in the computer environment. Often significant expertise is achieved by ten to fourteen year old people. Social maturity develops according to an entirely different time schedule than physical maturity.

ComputerTown, Menlo Park conducted many experiments in which young people with a good grasp of the technology were allowed to teach others in their age group. As long as young people are not thrown into situations they are unequipped to handle, peer teaching is a marvelous way to spread computer literacy. At ComputerTown, Menlo Park, beginning children have successfully taught each other, their parents, and other adults. Beginning adults gained confidence by learning with their friends.

Who are "peers" exactly? They can be people of the same approximate age, or of different ages with similar abilities. The peer teaching relationship works best when the teacher and learner are very close in know-how. By showing someone else how to follow a new procedure, the teacher learns a lot himself. At the same time, the learner sees that there isn't too far to go.

If teacher and learner are age-mates but diverse in their abilities, a peer teaching arrangement is much less likely to work than if they are close in ability. The teacher may go too fast or choose material that is too advanced, and the learner is short changed. Peer teaching seems to work best when the teacher is just a little ahead of the student.

The Palo Alto (California) Unified School District's "Computer Tutors" program, directed by Joan Targ, has implemented peer teaching among seventh and eighth grade students at Jordan Middle School. In its first three years, approximately 400 students took the program's beginning class in BASIC. Selected students who wished to learn more paid their advanced course "dues" by teaching the fundamentals they had just learned to the next generation of beginners. With this approach to peer teaching, "Computer Tutors" has become a self-sustaining learning pyramid, with minimal adult participation.

E. ComputerTown Mentor Project

"He's learned everything they have on computers at school, and now he spends his evenings pouring over manuals at home. But he needs some guidance and a chance to practice. How can we help him?" This is a problem faced by many people who have caught the computer "bug."

One solution is to form a ComputerTown Mentor Project to match self-motivated learners with more experienced computer hobbyists and professionals who are willing to share their knowledge.

How can you establish a mentor project through your ComputerTown? First, hold a ComputerTown meeting. Invite kids and adults who would like to find a mentor. Invite adults and older kids who would like to volunteer for the honor. Whoever coordinates the mentor project should be computer literate in order to evaluate the practical knowledge of potential mentors.

Your meeting agenda could go something like this:

1) Invite people to come in and sit in a circle.

2) Briefly introduce the ComputerTown mentor project.

3) Start round table introductions. Give your own name, occupation, and favorite computer-related topic, then invite others to do the same.

4) Have forms available for exchange of names and phone numbers. Explain the forms, and set them out on the table. Also, offer "contract" forms such as the one below:

ComputerTown, Anywhere Mentor Project

Mentor's Name----------

Address----------

Phone----------

I work/go to school at----------

I would like to teach----------

I have these computing resources available:

I could be available at these times:

Student's Name----------

Address----------

Phone----------

I work/go to school at----------

I would like to learn----------

5) Open the meeting for discussion.

6) Have two or three show and tell demos available.

7) Offer juice, coffee, tea, cookies, or whatever sounds tasty.

8) Let informal associations form.

This should get your mentor project off to a good start. If only students in search of mentors show up, organize them into a mentor-finding committee. If only potential mentors appear, discuss the meaning of the mentor role, and compile a list of volunteer mentors to be distributed to schools in the community.

In the brochure, "Mentorship for the Eighties", Kendra R. Bonnett offers the following insights on the value of the mentor concept:

"Today more than any other time in recent history, children have been cut off from the adult world. With legislation such as child labor laws limiting the employment of youth and protecting them from harsh working conditions, the greatest part of young people's time is spent in school in the company of their peers. Even in the home, children usually have their own space, separate from adults... Cut off as they are, young people today are often unprepared for the responsibilities facing them as adults. They are confused as to the relationship of their adolescent activities to their adult life, and at worst they are disaffected, alienated, and drawn toward delinquency.

"During their growth to adulthood, young people require advisors and role models other than their peers, positions that in the past parents, relatives, teachers, and masters fulfilled. Today most of that responsibility falls to the teachers, who are not only ill-prepared to satisfy all of youths' needs, but also lack the time to give sufficient personal attention to each student. Although formal education can neither replace missing parental guidance nor change the economic and cultural features of society that have separated parent from child, it can perhaps suggest the means to ameliorate the ill effects. The school can serve as the medium for introducing, or rather reintroducing, the concept of mentorship...

"For the youth the advantages of the

mentorship relationship are clear. Mentorship has the potential to improve interpersonal skills and self-confidence, demonstrate the importance and application of classroom learning for solving real problems, and provide firsthand understanding of the nature of particular occupations and of adult working life. But the mentor benefits as well. An adult gains satisfaction from knowing she or he has accepted responsibility for the future by giving guidance to a person. It is the knowledge that something good has been put back into society."

Chapter VI
ComputerTown Host Institutions

Whether a ComputerTown is located in a public library, a senior center, a museum, school, or other public access site, the fundamental philosophy and approach to computer literacy remains constant. There are, however, certain characteristic needs and conditions which make each kind of host unique. This section will consider some special traits of specific ComputerTown hosts.

A. Computers at a Public Museum

The public museum can be an ideal setting for hands-on exploration, structured demonstrations, and computer literacy classes. Although hundreds of children take this opportunity to get close to a computer, their enthusiasm is well matched by the adults who are delighted to learn along with their kids in these non-threatening environments.

Museums typically offer three kinds of experience: the unattended exhibit, the guided demonstration, and scheduled courses in typical classroom settings. Introducing microcomputers into any of the three will give it a whole new dimension.

What hardware and software is appropriate for a museum exhibit? Nothing fancy: off-the-shelf hardware and software may seem a trifle dull if you have been experimenting with it for a year or so, but to the computer neophyte it's all new and exciting. A computer such as the Atari 400 with the Video Easel cartridge inserted and one joy stick, or a Texas Instruments 99/4 with an educational game cartridge will almost make a complete exhibit in itself. Add a copy of the instruction booklet protected by clear, self-adhesive shelf paper and you are in business. Whenever possible, cover switches and latches with plexiglas panels so that visitors don't open or disconnect the equipment by mistake.

The Palo Alto Junior Museum in Palo Alto, California, held a computer exhibit during March and April, 1981. Local retailers and manufacturers were able to lend systems for this short period of time. Commodore, Radio shack, Atari, Texas Instruments, Hewlett Packard, and the local school district were all represented.

Software was loaded in the morning when the Junior Museum exhibit opened and usually had to be reloaded several times during the day. Many visitors

already knew how to clear the computer's memory, although they had to be taught to load from cassette tape. Because of the delay experienced when loading tapes, cartridge software was preferred. Each machine ran only one program for several days. This encouraged people to spend a little time at each computer and then move on so that another visitor could have a turn.

Favorite software among the young museum visitors included Atari's "Video Easel" and "States and Capitals;" "Fire" and "Hurkle" from Creative Publications for the Radio Shack TRS-80; and "Lemonade Stand" for the Commodore PET. Also popular were the disk-based math games developed by Science Research Associates.

Visitors with some computer experience delighted in clearing out the taped-based software and writing their own small BASIC programs. Although this activity had not been included in the original plan, it worked out rather well and soon became the custom for visitors to teach each other. Video games such as "Space Invaders" and "Star Raiders" were specifically absent from the exhibit. They are so engrossing for some visitors that the museum would not have been able to handle the competition for machines.

The Coyote Point Museum, located on the San Francisco Bay in San Mateo County, California, is an environmental museum built on four descending levels. The permanent exhibition, "The Place Called San Mateo," leads visitors along a series of ramps symbolizing the eastward flow of water from the crest of the Santa Cruz Mountains down to the San Francisco Bay, and its westward flow to the Pacific Ocean. Each computer system is enclosed in a box on a wooden pedistal, with only keyboard and screen exposed. The programs were developed for the museum by local programmers.

What do people learn in a free access computer exhibit at a public museum, or any other public access setting?

First, they discover that computers don't bite--they don't explode and spit fire like the science fiction portrayal, they don't attempt to take control of the world or even to order the hapless beginner around.

Second, they begin to see the versatility inherent in computer technology. By experiencing games, simulations, and rudimentary BASIC programming,

adult visitors to the Junior Museum began to formulate their own answers to the question, "how could I use a computer?"

Third, by actually pressing keys and operating the machines themselves, people gain practical knowledge of how to use a computer. Once a minimal threshold of confidence and interest is crossed, many people choose to take short classes in computer programming or the use of application software or computer-assisted instructional packages.

Fourth, in every real computer environment, people see some examples of machine failure and many examples of apparent machine failure which usually turn out to be user generated. Visitors discover that everyone makes mistakes, even computer experts, that machines are usually reliable but not infallible, and that each of us can learn to use computers if we keep an exploratory attitude and don't quit.

The following museums are among the many which incorporate microcomputer technology into their exhibits:

- Boston Children's Museum, Museum Wharf, Boston, Massachusetts (617) 426-6500; 426-8855
- Capital Children's Museum, 800 3rd Street, N.E., Washington, D.C. (202) 543-8600
- Coyote Point Museum, Coyote Point Dr., San Mateo, California (415) 573-2595
- The Franklin Institute, 20th & Benjamin Franklin Parkway (215) 448-1000 Philadelphia, PA
- Lawrence Hall of Science, Centennial Dr. Berkeley, California (415) 513-2415
- Oregon Museum of Science and Industry, 4015 S.W. Canyon Rd., Portland, Oregon (503) 222-2828
- Pacific Science Center, 200 2nd North, Seattle, Washington (206) 625-9333
- Sesame Place, 100 Sesame Rd. Langhorne, Pennsylvania (215) 757-1100

B. Libraries

If a public library is your ComputerTown host, take pains to develop a good rapport with members of the library staff. While not all will take an active role in ComputerTown, the jobs and working environment of everyone on the library staff will be affected in some way. Pay close attention to their feedback and suggestions.

You may arrange to bring in a new staff member to monitor the project during library hours, or you may agree to appoint one member of the existing library staff. Whatever the arrangement, everyone involved must recognize that monitoring ComputerTown activities in the library is a considerable amount of work. It should not be added nonchalantly to an already full working schedule.

Micros in the Menlo Park Library--An Assessment

The experimental ComputerTown at the Menlo Park Library site was intentionally informal. Computers were simply brought into the library setting in order to observe response and behavior. The results were mixed, as the following report based on librarians' comments will show.

When microcomputers had been in the Menlo Park Public Library for nearly two years, ComputerTown evaluators sat down with two members of the library staff who had been on the site while the computers were in use. The object of the meeting was to record their candid comments about microcomputers in the library setting. Their observations fell into several generic categories. The following notes cover a description of concerns, comments by the librarians, and the ComputerTown staff suggestions for improvement.

o Software

Areas of Concern: The ComputerTown, Menlo Park test site provided public access to software from the beginning. Residing on cassette tapes, the bulk of the software involved what the project referred to as "games with a purpose," that is, games and simulations involving some implicit learning activity. Initially, the cassettes were placed by the machines, and used at will. Problems arose (detailed below) that required closer monitoring of the software and its usage.

Librarians' Comments: Game tapes were a problem

because they increased the noise and physical activity in the library. High activity game tapes should be used in a more appropriate place, such as a separate room in the library, or a recreation center.

Because of staff limitations, tape circulation was a problem in this library. It might have been better to limit the total number of tapes and provide software that is explicitly educational.

Also, when a tape would not load for some reason, we did not know what to do.

Solutions: Most libraries have no problem serving as a source of books for recreational reading; but when the recreation involves non-book media, the function of the library is called into question. Candid discussion of the library's role at a staff meeting should help to establish the relationship to children's recreation this library wishes to maintain. If computer games are acceptable to the staff, include them. If not, other kinds of software are plentiful. ComputerTown is not a mandate to turn a quiet library into a video game parlor.

Each library has its own standards on the question of noise and physical activity. Although increased use of the library will necessarily create some increase in commotion, the introduction of the computer need not change the whole character of your library.

The problems with tape circulation at Menlo Park revolved around several factors: computers were often in poor repair, tapes wore out, and no formal circulation system existed. Careful planning and training of the library staff would eliminate these problems.

o Space

Areas of Concern: The children's section of the Menlo Park Library is not large. Narrow aisles separate packed books selves. The computer area was next to the study tables, in the only available open area. Until the situation was alleviated, as many as five microcomputers might be in use at a time. It was not unusual to see two or three kids per machine, with additional kids at the study tables awaiting their turns.

Librarians' Comments: It was definitely quieter before the computers came!

Solutions: The librarians themselves suggested the following solutions. The set-up should be limited to one or two machines, with one or two kids per machine. The area was not originally designed for that kind of use, and the computers sometimes interfered when other visitors wanted to study at the tables nearby. A separate room would have been a good solution.

Computers seem to cause new kinds of usage patterns, and each library has unique space considerations. The computers should fit appropriately into each environment. Designers of future libraries need to integrate the placement of machines into the library so that they will not disrupt other activities.

o Babysitting

Areas of Concern: When word gets out that computers are in the library, crowds may begin to appear after school. Some schools in Menlo Park let out as early as 2:00 p.m. Many kids had to wait for two or three hours before working parents could take them home. When this after school crowd discovered the computers, librarians really had their hands full.

Librarians' Comments: We are not babysitters. We have made that clear. In fact, we have written letters to the schools to alert the parents of our feelings about this situation. The computers were not at fault; we seemed to have a local community situation that the computers attracted to the library.

Solutions: At the time of this conversation, librarians did not consider computers to be an integral part of the library services. Normal afternoon traffic was light. The introduction of an overflow crowd would have been disruptive whether the kids were using books, magazines, records, or computers. In analyzing difficulties, it's necessary to resist the temptation to associate a new problem with a new technology. Often, the relationship is coincidental, not causative.

In this case, the babysitting problem was due to the library's proximity to a school, and predated the introduction of computers. It was made worse because there was no one in the computer area willing to deal appropriately with this age group. An approach that included contact with the school, rearranging the computers, and limiting the arcade game software solved the problem.

o Success

Areas of Concern: The librarians were asked what, in their estimation, would consititute successful use of computers in the library setting.

Librarians' Comments: Successful use of computers in the library means that the computers must function as an integral part of the library environment. The computers need to be integrated into the kinds of services we normally provide. In our opinion, this means educational activities. Providing plenty of books and magazines on computers is also a big help, because it fosters the self-teaching experience and keeps questions at a minimum.

Any time the computers are available, there should be a monitor to answer questions, supervise, and handle problems that may occur with hardware, software, scheduling, check-out, and all the other details that go along with having computers in the library. Our first priority would be coverage at the circulation desk, then handling the computers.

Solutions: The librarians' attitude toward success was that the computers would not interfere, or change the library in any significant way. ComputerTown staff thinks in terms of successful use of computers in a public access setting. An integration has to occur in librarians' attitudes toward this technology before it will be embodied in the institution. Books are one medium for the presentation of concepts, computers are another. ComputerTown anticipates that both will find a comfortable niche in the public library setting.

The staff of ComputerTown, USA! is grateful to the staff of the Menlo Park Library for the opportunity to explore the growing pains which take place when a new medium enters an existing institution.

Rules and Procedures

Even if your ComputerTown has a very informal structure, a few established rules and procedures will probably be necessary. The simplest way to inform visitors of ComputerTown rules is to post them near the computers. The following list was posted at the Menlo Park test site:

ComputerTown, Menlo Park
Computer Rules

1. You must have a current library card from any library and a validation stamp on the back, signed and dated by a ComputerTown staff member.

2. Fill out the sign-up sheet completely. Enter your full name and the starting and finishing times in the columns under the name and number of the computer you will be using.

3. There is a half hour limit on your computer time if other people are waiting.

4. Two people (not three) may sign up together--one for the first half hour and the other for the last half hour and actually have a full hour together.

5. You get one half hour session per day unless there is no one waiting to use the computer.

6. Please take care of the computers and library facilities--no food gum, drinks, or littering are allowed in the library or near the computers. ESPECIALLY DRINKS!

7. Always rewind and return tapes to the tape box.

8. Pay attention to aides and librarians--penalties can include loss of computer time.

In addition to the posted rules, ComputerTown, Menlo Park kept a pad of paper available for visitors to jot down suggestions for further information, resources, events, and services they would like to see at the ComputerTown site.

Some special problems can occur when kids use computers at a ComputerTown. They often lose track of time spent at the computers, and may have to be reminded that their time is up and someone else would like a turn. Since kids tend to crowd around the computers, there may be a noise and congestion problem. Kids sometimes need assistance with loading tapes; tapes and their covers may get mixed-up.

These problems can be eased by separating the childern's computers from the adults, and providing an adult ComputerTown representative in the kids' section to answer questions, solve disputes, and generally supervise activities. Although an age-limit policy may not be necessary at your site, the Menlo Park library reserved two computers for kids age two through nine, when accompanied by a parent. Unsupervised use of computers by kids under nine was restricted to those who could pass the validation tests.

Evolve your own set of rules and procedures based on your experiences in working with the public and whatever it takes to make your ComputerTown run smoothly.

C. Planting New ComputerTowns

Judging from ComputerTown experiences in California, some of your events and activities will plant ComputerTown seeds in neighboring areas or host institutions.

Don't be surprised if people you have been working with decide to strike out on a ComputerTown project of their own. During this period of explosive growth in computing, there is a corresponding need for more public access computer literacy projects. ComputerTown International encourages the formation of autonomous computer literacy projects as long as there are people anxious to learn. The ComputerTown International network will keep communication lines open between the projects.

Many existing organizations are particularly fertile soil for ComputerTowns. Senior centers, Boy's and Girls' Clubs, YM/YWCAs, day care centers, centers for the mentally and physically handicapped, and other community facilities are ideal. Groups such as the American Association of University Women, the League of Women Voters, and various service clubs in your community could also be open to sponsoring ComputerTowns. Since many are linked through national organizations, word of one chapter's computer literacy activities will likely spread through those channels, and still more ComputerTowns will emerge.

Several institutions in the Menlo Park area hosted ComputerTown workshops and went on to develop ComputerTown projects of their own. The following notes describe what happened.

Computers at the Senior Center

Before it became a computer literacy project in its own right, Menlo Park's Little House Senior Center was the site of an event presented by ComputerTown, USA!

ComputerTown staff brought computers to the lunch room of the center during the noon hour. About 120 seniors attended lunch that day, and as they finished eating, they began to come forward to ask questions and use the machines. The seniors were eager to learn and explore what the computers could do for them. Inquiries went all the way from, "What are these things?" to "How can I use this to monitor my real estate and financial portfolio transactions?" People were interested in art, music, writing, and general home management tasks that could be assisted by

microcomputers.

Matt Lehmann, an active member of Little House, decided to develop a full-fledged ComputerTown at the senior center. The Little House project began with one "seed computer" on loan from ComputerTown, USA! Palo Alto, California's "Computer Tutors" program later donated a new set of time-sharing terminals to the project, purchased with the aid of a local foundation.

"The home computer is becoming so much a part of our daily life that a comfortable acquaintance with this new appliance is essential for everyone," Matt says. "Although much has been accomplished in making the younger members of society comfortable with computers and their use, the elder citizen has been neglected. In an effort to rectify this error, Little House has initiated a class in computer demystification and use. This makes it possible for the seniors to study and work in a familiar and comfortable, non-competitive atmosphere. They study with people in their own age group so they do not feel that they will be made to look foolish when trying to absorb some of the complexities of computer language."

Computers at the Boys' Club

In January, 1981, ComputerTown, USA! held an event at the Herbert Hoover Boys' Club in Menlo Park, California. During the day more than forty kids, several parents, a few interested adults, and a news reporter got their hands on the computers. The staff spent a busy two hours providing information, loading software, working with the kids, and answering the reporter's inquiries. As they packed to leave, one of the girls who attended the event typed the following message on the computer screen:

BRING ME ONE FOR CHRISTMAS!

An enthusiastic article in the local paper and another in Recreational Computing magazine combined with word of mouth to bring a flood of community response. So, with the help of a Commodore computer donated by Bob Albrecht, the Boys' Club began an on-going computer science training program. "Since then, the computer project has been in full swing and great demand," reports Boys' Club President Margo Ritter. At present, the club has three computers, an Atari, a

PET, and a TRS-80, with open access hours from four to eight p.m. daily. Plans are in the making for the building of a special computer room in the club.

Pelton Steward, who facilitates the project, is introducing computers to Boys' Clubs all around the area, including the San Francisco Boys' Club which played a supportive role in his own formative years. A special "traveling computer" is devoted to the task.

Several fundamental differences between the projects described above and the Menlo Park Library ComputerTown test site are worthy of note.

- The Herbert Hoover Memoral Boys' Club and the Little House Senior Center focused on a narrowly defined user base. A library must service a great number of people with diverse interests and needs. Its primary purpose is to provide information, whereas these other facilities provide educational or vocational opportunities and activities.

- In an activity-oriented setting, there is a chance for synergy between the ComputerTown and other activities at the site. At the Little House Senior Center, for example, the shop classes got involved by building housing for the machines. This kind of integration did not take place at the library.

- The Herbert Hoover Boys' Club and the Little House Senior Center each had one key person, committed to seeing the project happen. Computers were "introduced" to the Menlo Park Library from an outside source; no member of the library staff had initiated the project.

- Finally, these sites set aside a particular area for the computers. The library computers were placed within the existing physical arrangements.

These factors made considerable difference in the growth and success of the different ComputerTowns in the Menlo Park area. After conducting a few introductory events and seeding one or two computers, the role of ComputerTown, USA! diminished, leaving the Boys' Club and the Little House Senior Center to thrive by themselves. These projects were especially successful in that they were self-starting, self-

generating, and did not require a great deal of outside support. Interestingly enough, none of these projects had a highly technical volunteer on staff.

ComputerTown School Outreach Project

Schools, at elemetary, secondary, college, and continuing education levels, wrcte the majority of the letters requesting help from ComputerTown, USA!/ComputerTown International. But school classrooms rarely provide "public access" in the same way that libraries, museums, community centers and Boys' Clubs do. The purpose of the ComputerTown School Outreach Project was to create a synergy between the schools' need for expertise in the computer field to enhance their curricular program for their students and ComputerTown's mandate to improve computer access and knowledge for the general population. Through developing the School Outreach Project, ComputerTown hoped to benefit both schools and their surrounding communities.

The School Outreach Project is quite simple. ComputerTown, USA! and ComputerTown International have expertise in teaching computer literacy and setting up successful computer literacy programs as well as knowledge about equipment, software, and key people in the field. The staff can advise schools on setting up their own classroom-based computer literacy projects if the school can, in turn, help ComputerTown reach more members of the community. The school can make any arrangement it chooses to promote computer literacy outside the classroom and no effort is considered too small. One Saturday per semester might be set aside for computer students to teach their family, friends, and neighbors the same material they have been learning in class.

Schools wanting more public involvement have a number of additional options. For instance, the school's computer equipment might be made available to scouting and other youth groups after school hours. The students could arrange with Rotary or other business groups to give demonstrations. Visiting programs could be arranged with schools that do not yet have computer literacy projects. Students could be assigned to teach two other people who would not normally have had access to this equipment for two or three hours per semester. Teachers might be encouraged to give after-school classes sponsored by the city's adult or continuing education programs or the recreation department. In some districts, arrangements might be made to move the school's computers to a nearby public library for use over weekends and vacations.

Community colleges and other colleges with

extension divisions have their own outreach programs. Someone at your ComputerTown should learn about computer literacy curricula available to the public and publish this information through a bulletin board at your site or a frequently updated flyer. Most colleges have a few courses in programming, microprocessors and business computing which are appropriate for beginners. It is not necessary to offer the same classes at your site unless the colleges are remote, over-enrolled, or closed to children.

Non-facility Centered ComputerTown Groups

So far, we have discussed ComputerTown activities which are associated with institutions. But the ComputerTown spirit can work just as well in your neighborhood or at your house--especially as the number of personal computers grows. You will need the same key ingredients necessary for any ComputerTown--a person with know-how who is ready to share, some others who want to learn, and one computer. You can even start without a computer and set your first goal to raise enough money to buy one.

Neighborhood Computer Clubs

If the idea of a neighborhood ComputerTown group sounds like it would suit your needs, here is a list of suggestions:

1) Set up a structure for your neighborhood group's first goal: this might be to obtain a computer and software. Discuss the details, set up a stategy, and then go to it! Be sure to look into the possibility of a discount from the dealer for a "buying pool", and before you buy the computer of your choice, be sure to determine each member's share of expense and access to the new computer.

2) The same considerations go for software as well as the computer. Your neighborhood group will need to divide the software cost and circulation among its members. You might even consider a "rental-based" system of software circulation.

3) To finance your neighborhood computer club, you might want to offer a ComputerTown neighborhood garage sale--or even several of them, going on simultaneously. When you advertise the day on flyers, newspaper announcements, and so forth, you will also be letting the public know about your plans for a neighborhood ComputerTown. With an approach like this, you can earn funds and gain new neighborhood participants at the same time.

4) If your club would rather skip the equipment issue all together, field trips are another way to increase your computer

literacy and have a lot of family fun. You can visit the bank, the grocery store, the newspaper, the police station, and, of course, your local computer store, to name just a few. Call ahead to each site and ask if a representative can meet with you to explain how computers are used there. These trips will make great school reports for kids!

5) The goal of your group will of course be determined by the individuals who comprise it, but they will presumably be something along the lines of sharing ideas, experience, and knowledge about computers. A loose, relaxed structure is most fitting for your neighborhood ComputerTown. Meetings can take place once a week (less often if you choose, of course) at the house of whichever member is currently keeping the computer and software (if your group has any). Activities can include informal presentations, lectures, discussions, brainstorming sessions, or problem solving get-togethers.

6) The neighborhood ComputerTown organizers should be responsible for guidance and direction of the group as a whole. They should consider how to publicize the groups's existence and activities, how to handle organizational details, and either be able to take on teaching responsibilities themselves, or have ready access to someone who will.

7) The members' responsibilities would include a democratic participation in major decisions, helping to determine the group's direction and objectives and taking a personal responsibility to see that their own goals are realized through the group's activities.

Users' Groups

A users' group is an association of people who share a common interest in a specific piece of technology. Also called a hobby club, such organizations usually focus on a particular manufacturer, Digital Equipment Corporation, or Sinclair, for example. Sometimes they are oriented toward software, perhaps the CPM operating system or LOGO language. As a user's

group grows, it may develop subsections, called SIGs (special interest groups). By the early 1980s there were users' groups for almost every computer in most major U.S. cities and many around the world.

When you start your ComputerTown, be sure to visit the users' groups nearby and enlist their help. Users' group members are among your richest sources of information and know-how. Most hobbyists are eager to explain their latest computer gadget and will talk well into the night to any interested listeners, and many will be happy to bring their own equipment to the events you plan.

Remember that ComputerTown is grassroots, informal learning. No matter where your project's base of operations might be, no matter how structured or easy-going its activities, the all-important ingredient that really makes a ComputerTown is "people helping people learn about computers."

Chapter VII.
Creating a Formal Organization

Since each local ComputerTown is autonomous, there are no limits to the variety of organizational structures which can develop. Some projects have begun as isolated events, exhibits, demonstrations, workshops or playdays that were so popular a regular schedule developed. For convenience, the project may join with existing institutions which already have meeting rooms, equipment storage, and administrative facilities. Libraries, museums, youth clubs, schools and community centers around the world are adopting computer literacy projects which originate outside the institution. Computing organizations such as hobby clubs and professional societies often add the ComputerTown concept of public education to their other activities. Alternatively, the governing boards of many public and private organizations are choosing to offer computing as an integral part of their regularly supported services.

The organizational structure of a ComputerTown reflects the needs of the people who plan and present the activities. Some have no formal structure. They just seem to happen. This was true of the original ComputerTown in Menlo Park. However, when a ComputerTown exists within a host non-profit organization such as a library, museum, school, or civic club it is normal to take on the host's way of doing things. The same is true if the host is a "for profit" company, a store or manufacturer, for example, which is supporting the ComputerTown as a public service gesture. Of course, your ComputerTown might be completely independent, functioning as an association of individuals or a non-profit corporation.

However you choose to set up your ComputerTown, don't wait for it to be perfect. Just start. Your organizational needs will make themselves known as you explore and experiment with the ComputerTown experience in your own particular setting.

A. ComputerTown Charters

Whether a ComputerTown exists independently or under the umbrella of another institution, a concise statement of the project's purpose and activities will keep communication channels open between volunteers, visitors, and the community. The sample ComputerTown Charter below might be appropriate for an independent ComputerTown. It might also work if you are affiliated with another loosely organized group. However, many existing organizations already have

regulations under which the ComputerTown project may fall. To avoid potential conflict, check this out thoroughly. The sample charter may be copied or modified to describe the purpose and function of any community-based ComputerTown project. Also, have a lawyer
review your charter to insure that it is consistent withlocal, state, and national laws.

Sample Charter: ComputerTown, Anywhere

1) Purpose

ComputerTown, Anywhere is a voluntary association of individuals who come together from time to time for eductional and social purposes. The specific interests of ComputerTown, Anywhere members are:

- o To become "computer literate", by learning to use and to program computers;
- o To explore the varied uses of computers and their impact on society;
- o To provide public access to computers, free of charge, and to help other interested individuals become computer literate.

2) Function

ComputerTown, Anywhere may engage in, but is not limited to, the following activities:

- o Holding meetings;
- o Conducting classes;
- o Disseminating information through the publication of a newsletter or obtaining coverage in local news media;
- o Maintaining a library of printed and electronic material for use by members and the public;
- o Maintaining a public access computer facility on premises obtained for this purpose or with the cooperation of an existing host institution;
- o Raising funds to cover operating expenses and to purchase equipment;
- o Accepting donations of money, equipment, and professional services to further the project's activities and services;

- o Arranging the purchase of goods and/or services in order to obtain volume discounts for members;

3) Membership

Membership in ComputerTown, Anywhere is open to any individual, adult or child, who shares the interests stated in this charter and would like to participate in ComputerTown, Anywhere's activities.

No membership fee may be assessed to cover general expenses incurred by ComputerTown, Anywhere. However, specific activities may require a fee from each participant sufficient to defray the costs of that activity. No funds may be collected or distributed, purchases made, or charges incurred for the benefit of any individual member. ComputerTown, Anywhere funds may not be distributed for the personal profit or gain of any private individual.

Membership is not available to businesses or other groups. If such organizations wish to be informed of the ComputerTown, Anywhere's activities, at least one individual from that group must become a member of ComputerTown, Anywhere. This person may then act as liaison for his or her organization.

Businesses or other commercial organizations may become "sponsors" of ComputerTown, Anywhere. Sponsors may donate goods or services to the ComputerTown, Anywhere membership organization in return for promotional consideration. A sponsoring organization may require no further obligation from the ComputerTown group as a whole or its individual members.

Should ComputerTown, Anywhere dissolve or discontinue activities, any assets held by the organization will be sold and the proceeds distributed equally among its current members, or donated to a non-profit organization.

Be sure to deal with three potential legal issues in your charter:

1) Who or what legal entity owns any assets (cash, equipment, books, software, or other supplies) which may be donated to or earned by your project?

2) Who will carry liability insurance to protect your staff, volunteers, and the public in the event of an accident?

3) What, if any, are the tax consequences of the organization and its activities?

Consult with your accountants and attorneys on these issues.

B. Funding

There are many ways to fund your ComputerTown. Three of the most common funding strategies are through cost-recovering activities, grants, or the host institution's operating budget.

Cost-Recovery Funding

A cost-recovery system involves a charge to each participant for activities and services provided by ComputerTown. Some events are specifically designed as fund raisers. Other activities, classes or workshops, for instance, usually set prices just high enough to cover expenses. This helps fulfill the Computertown ideal of low-cost or free public access to computing. Robin Hood has been known to visit ComputerTowns, however; an activity may be offered with a sizeable price tag at one time, and no charge at another.

Speakers and teachers donate their services, the meeting room is hopefully free, equipment is loaned. Attendees are asked for a donation at the door, and a good time is had by all. ComputerTown puts the money in the bank to be spent on equipment, software, salaries, supplies, and whatever it takes to promote computer literacy.

Grant Funding Strategy

The groundwork involved in acquiring money from funding agencies falls into three basic task areas. First, there is the research into and identification of likely funding sources; second, planning an effective funding strategy for your needs; the third step is to write the proposal.

Developing a funding strategy for your organization requires a substantial amount of research and planning prior to the writing and submission of your proposal. The sucess of your funding strategies depends on how well the goals and objectives of your proposed project are defined in terms that are understandable, meaningful, and realistic. What does your organization need to do in order to effectively implement your project, and why? Assessing your project in this way will provide you with the information you need to match your project with a funding agency with similar interests, and finally to develop your formal proposal.

Thorough research into the funding agencies will

help narrow it down to one or two appropriate target agencies. The three types of funding sources to consider are government agency grants, foundation grants, and business/industry grants. Several criteria are used to select the target agencies, including its geographical limitations, funding priorities or special fields of interest, average size of grants, types of grants (e.g. seed money, operating support, or matching funds), and the agencies' funding cycles. For example, there may be a community foundation in your area that funds educational projects of non- profit oganizations in your county, but will not fund staff salaries.

Information on the various grant-making agencies can usually be found in a large public library. Ask the reference librarian for help in locating them. The following books contain useful information:

For governmental programs:

- Catalog of Federal Domestic Assistance (dubbed the Sears-Roebuck of government grants)
- United States Government Manual (emphasizes activities of various agencies and addresses for requesting grant information)
- Federal Register (includes announcements of new grant programs; published daily)

For foundation research:

- The Foundation Directory (gives basic information of 2,818 foundations)
- The Foundation Grants Index (indexed by state, foundation name and subject)
- The Foundation Center National Data Book (identifies smaller foundations not included in the above directory)
- Foundation Center Source Book Profiles (detailed information on 500 major foundations and listings of past grant recipients)

For business/industry research:

- Corporate Foundation Profiles

(details 500 corporations and can be accessed by subject, type of support, and geographical region)

The Foundation Directory, Foundation Grants Index, and the Federal Register are available on-line through DIALOG, a computerized information retrieval system available in some libraries.

Several foundations and corporations are interested in supporting projects that focus on education and technology. Read through the Corporate Foundation Profiles and the Foundation Center Source Book Profiles. Both these resources will give detailed information on the major foundations and corporations, and their funding priorities. Check the various foundations and corporations in your state or area. Often, their gifts are restricted geographically and you may have the advantage if they are located in your vicinity.

Other useful resources for researching foundations and corporations include:

- o Lilly Endowment
- o L.J. Skaggs
- o Alfred P. Sloan
- o Bell and Howell
- o Zellerbach Family Fund
- o Charles F. Kettering
- o Dolfinger-McMahon
- o Levi Strauss
- o Tandy Corporation
- o Exxon Education Foundation
- o Control Data Corporation
- o IBM Corporation
- o Apple Foundation
- o Atari Institute
- o W.K. Kellog Foundation

- Spencer Foundation
- Rockefeller Family Fund

Begin by looking up these foundations in the various directories. Write for their proposal guidelines, and formulate your presentation. There are other foundations that will fund educational projects--this list is not exhaustive. With thorough research, you may find a private endowment in your area to help you.

Additional resources and ideas for funding sources include:

- Grant Money and How to Get It: A Handbook for Librarians, by Richard W. Boss
- Funding Report for Microcomputers, a free booklet published by Bell & Howell
- Federal Funding Guide and Proposal Development Handbook for Educators, published by Radio Shack
- "Funding Sources for Microcomputers" in Instructional Innovator, September,

At least three popular microcomputer manufacturers have established grant programs.

Radio Shack, a division of Tandy Corporation, committed $500,000 worth of TRS-80 computer equipment to a grant program designed to encourage and support the successful application of microcomputer technology in U.S. education institutions. The Tandy TRS-80 Educational Grants Program awards TRS-80 hardware, software, courseware, and related projects to individuals or non-profit educational insitutions whose proposals are selected as providing the greatest benefit to the American educational community. An impartial Educational Grants Review Board has been established to review submitted proposals and make recommendations for equipment allocations. An information packet containing a cover letter, TRS-80 brochure, catalog, submission information and a proposal cover sheet will be forwarded on request. For more information contact Tandy TRS-80 Educational Grants Program, Radio Shack Education Division, 400 Tandy Atrium, Fort Worth, TX 76102.

The Atari Institute for Educational Action Research fosters the innovative, yet practical, use of

personal computers in education. The Institute provides grants of Atari computer products and/or cash stipends to selected institutions, individuals or organizations able to develop and promulgate new uses for computers in education, whether it takes place in established institutions, community programs, or in the home. Applicants are requested to present a written abstract of their projects and interests, focusing on objectives, methods of implementation, and especially, proposed methods of evaluation and dissemination of results. For further details on preparing an Atari Grant Proposal, write to Ted M. Kahn, Executive Director, Atari Institute, 1265 Borregas Ave., P.O. Box 427, Sunnyvale, CA 94086.

The Foundation for the Advancement of Computer-Aided Education (formerly the Apple Education Foundation) offers grants to organizations and individuals for projects aimed at creating innovative methods of learning through low-cost technology. An informative brochure may be obtained by writing to the Foundation at 20863 Stevens Creek Blvd., Bldg. B-2, Suite A-1, Cupertino CA 95014.

During the initial research and planning stages of your proposal, several other tasks should be taken into consideration. One is to establish a base of community support. Statistics, endorsements and quotes need to be gathered for inclusion in your proposal. Concrete examples and quantifiable assessments of need will help justify your project. Another task to consider is developing contacts and cultivating the support of your board of directors or trustees.

Writing the Proposal

Having completed your research and selected a target funding agency, you are ready to start the application procedure. Some agencies have specific procedures, forms, or deadlines. Send a letter to the agency or foundation to inquire about these procedures and establish your intentions. This initial contact letter should be brief, no longer than two pages. Identify your organization as a potential applicant, describing succinctly your needs, anticipated accomplishments and impacts, and the nature, time frame, and total dollar amount of your proposed program. Address the letter to the foundation manager or principal officer (your research will have provided this information), not "to whom it may concern."

In a few weeks, the foundation or agency will probably inform your organization of any decisions they may have made. The letter may politely state that your project does not conform to their current priorities, or it may ask you to submit a longer, more formal proposal. The specific agency to which you have applied may have its own form or guidelines; however, all proposals generally follow the same format and require the same general information. The organizational assessment and planning you have done during the research phase provides an efficient outline for this next step. Your formal proposal should include the following components: summary, introduction, needs assessment, goals/objectives, methodology, evaluation, future funding, budget, and attachments. Let's take a look at them one by one.

Summary: The summary is usually the first, and sometimes the only, part read by the foundation officer, and it should be gripping. A clear and concise summary should:

1) identify the applicant and include a phrase or two about the applicant's credibility;

2) include the reason for the request and the objectives to be met through this funding;

3) briefly describe the activities that will be conducted to accomplish the objectives;

4) specify the total cost of the project, and the amount requested in the proposal.

Introduction: The introduction establishes your organization's qualifications or credibiity. It might include a brief history of your organization, prior

and current activities, accomplishments and impact, size and characteristics of your clientele, quotes or letters of support, important publications, and other relevant information.

Needs Assessment: The needs assessment section focuses on some need or problem of your clientele and should clearly relate to the your ComputerTown's goals and objectives. Supporting evidence such as statistics, authoritative statements, and clients' requests is instrumental in justifying your needs.

Goals and Objectives: The most difficult aspect of proposal writing is differentiating between goals/objectives and methodology. Objectives of your proposed program are the outcome of the activities and not the activities or methods themselves. Program objectives should define in numerical terms who and how many will be served by your project, what you hope to accomplish in what time frame, and how you plan to measure your success.

Methodology: Once needs and objectives have been made clear, the next step is to describe the methods or activities that will be used to achieve the desired results. Activities should be clearly defined and justifiable. The sequence of proposed activities, the project's proposed staffing, and the intended clientele should be described. The scope of activities should be reasonably attainable within the allotted time.

Evaluation: This section describes methods that will be used to evaluate your program's effectiveness. It presents a plan for determining the degree to which the objectives are met and the methods to be followed. The plan should cover the process of data collection and analysis, define evaluation criteria, and describe the production of evaluation reports.

Funding From the Host Institution And Other Possibilities

Writing grants for your computer projects can be both rewarding and time consuming. When time is a critical factor, alternatives to grant writing can produce more immediate results. The easiest way to obtain funding is to ask your "Town Hall" host institution to take ComputerTown under its budgetary wing. The host insitution's managerial staff will be able to fill you in on any required procedures.

Creating alternative sources of support can be as easy as approaching some of the regular library users, members of your library commission or board of trustees, and teachers in your local school district. They can refer you to a vast network of potential support. Contact your state library association to find out about your state's Library Services and Construction Act. Several libraries have received LSCA funds to set up computer literacy projects.

Support may come from corporations in your area willing to donate equipment or funds in exchange for services which would benefit their employees. Managers of local computer stores may donate equipment if it can be justified in terms of public relations and generation of potential business. Members of local computer user groups are a good source of volunteers who may be willing to supply your project with equipment, software, or teaching support for special events. Many libraries and museums have "Friends" groups which may provide a ready source of funds for furniture or equipment.

Fund raising devoted specifically toward purchasing a computer can include a variety of activities. Portions of the proceeds from a book fair sale can be appropriated toward the purchase of a microcomputer. A "fun run" can be staged as part of your activities during National Library Week.

Your project can be sustained by fees received from offering introductory classes on microcomputers. You may also decide to install a coin operating device in order to "rent" time on your computer. The recreation department in your city could start a computer club and use your facilities for a modest charge. Local schools may be interested in holding computer literacy classes in your library, paying for the services rather than purchasing several microcomputers for the school.

You might also consider approaching your project from a unique angle. Why not set up a microcomputer center for senior citizens, provide reading literacy programs via microcomputer, or offer special access to computers for the deaf or handicapped? Providing services for specific groups will often make funding easier, since you can approach foundations that specialize in funding programs for certain target organizations.

Innovative funding strategies can take many different forms. Let your creativity soar!

Chapter VIII.
Conclusion

Now that you have reached the end of this book, we trust that you are inspired to start your own ComputerTown.

If you now live in an area where there are no computer literacy activities, perhaps you will be the person to start a few. If you are already involved in computer literacy projects, you may have already invented a new approach or two. If you are part of a techno-ghetto, you might have neighbors who share your interests and dreams. If you once thought that the computer age was available only to younger people, perhaps now you will reconsider.

ComputerTown is a cultural movement that we invite you to join. What action you decide to take is, of course, up to you. By the time you read this document, many new ComputerTown activities will have taken place and a number of new ComputerTown sites will have formed. The invitation is for you to become part of this exciting and rewarding adventure in bringing computers to the public.

In the future, as we, our children, and their children use computers regularly, perhaps there will not be a need for ComputerTowns. Right now, though, a need does exist to give people information and access to microcomputers and ComputerTowns can assist with this task by placing microcomputers in public enviroments.

The ComputerTowns we build today are investments that will help us cope with the accelerating changes brought on by the use of the technology. They are investments in our own future. So, make your ComputerTown strong and functional. Use our models and suggestions or invent your own expression of the concept. Remember, in your community, ComputerTown is whatever you declare it to be. Bring forth your ComputerTown by telling the world that you exist and that you are ready to be the person who is "bringing computer literacy to their entire community."

APPENDIX I
Handling ComputerTown Resources

An important part of any ComputerTown site is the organization of site resources and services: physical environment, hardware, software, printed materials, people, classes, workshops, special programs, and of course, funding. This section will serve as a checklist of the detailed aspects of conducting a ComputerTown. It will cover, among other things:

The Physical Space
Maintenance
Software Storage
Inventory
Troubleshooting
Security
Use of Print Materials

A. The Physical Arrangement

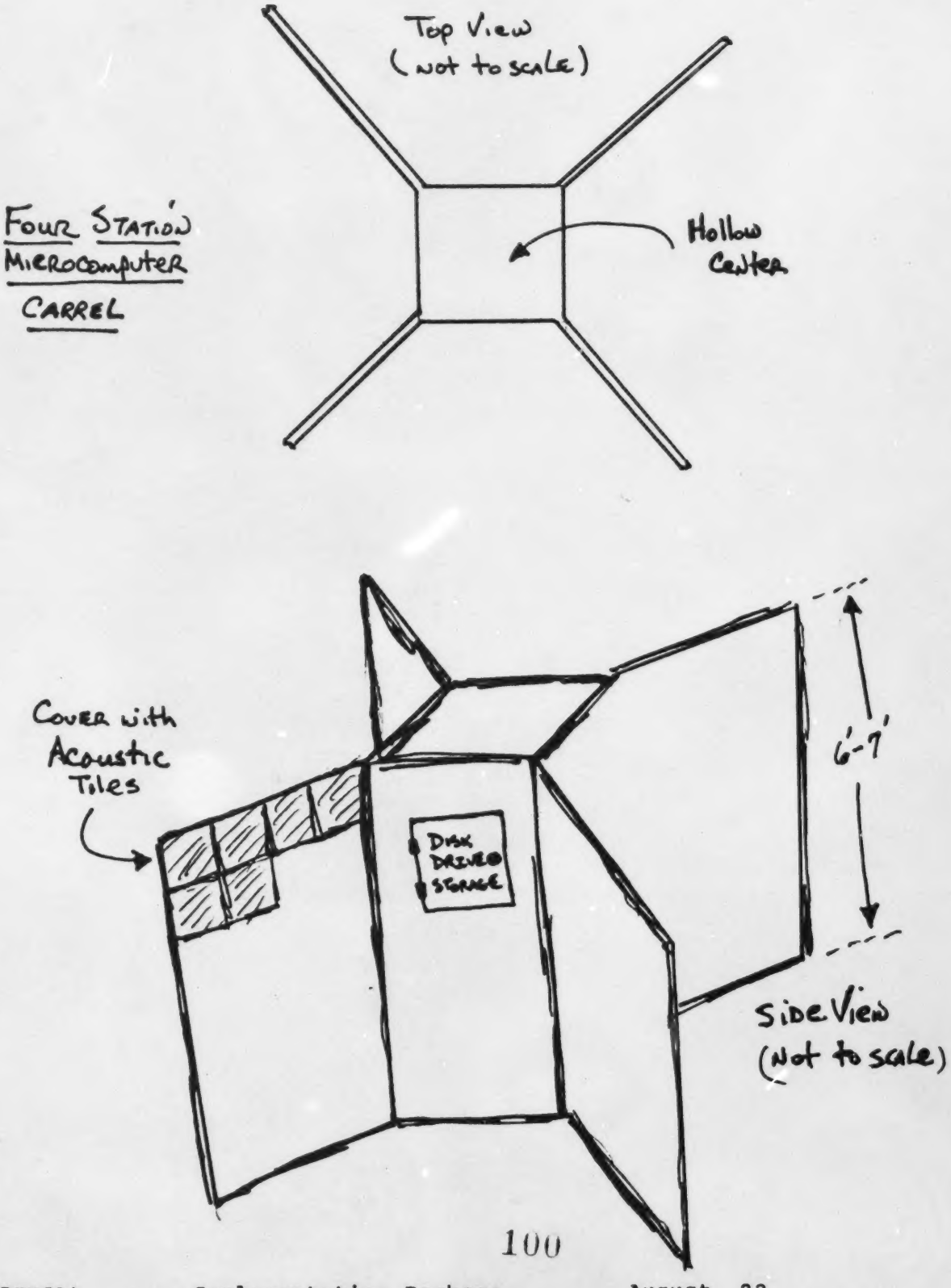
Once your ComputerTown begins to take root in its public access "Town Hall" facility, it is a good idea to design a physical arrangement to serve the needs of ComputerTown patrons and accomodate those who may visit the host institution for other reasons.

In the Menlo Park library, for instance, other activities were sometimes disrupted by exhuberant youngsters at the terminals. Four or five computers in a very small space resulted in a lot of close physical contact, including occasional fights. Facilitators determined that the noise and rowdiness problem could be eased by rearranging the environment.

It was decided that each computer should have as much surrounding space as possible. No more than two computers should be used for playing games. Two computers were moved into the adult library section and kids unattended by a parent were discouraged from using these machines.

The Little House Senior Citizens' Center in Menlo Park experienced similar noise and congestion problems in its ComputerTown site. The problem was eased when special area was designated for computer use with some individually designed enclosures to house the equipment.

Don't be reluctant to look at new ways to locate and house the computers. For example, here is a proposed design for a microcomputer installation that will conserve space and limit noise:


Top View
(not to scale)
FOUR STATION
MICROCOMPUTER
CARREL
Hollow
Center
Cover with
Acoustic
Tiles
DISK
DRIVES
STORAGE
6'-7'
Side View
(Not to scale)

This design includes a partition, 6-7 feet high, made of acoustical tiles or other materials, which isolates small groups of two or three from other groups of the same size. The design is compact in terms of space usage. The central section could house a disk unit to service all four machines.

A further design alternative might be to designate specific machines for certain activities:

Computer #1 could be reserved for learning to program. In the event of heavy demand, time limits could be imposed on each user.

Computer #2 could be reserved for educational games, such as STATES AND CAPITALS, INTERACTIVE STORIES, SPANISH, and so on.

Computer #3 could be for playing Adventure games.

Computer #4 could be for open activities, such as learning to write programs, word processing financial calculations, and data base management.

There are as many possible designs for the physical space as there are rooms in your facility. Spend some time brainstorming ideas with people from the host site and your own staff on how to best configure your ComputerTown's physical environment.

B. Handling ComputerTown Equipment

Whenever groups of people work with equipment over an extended period of time, several common problems occur. The main causes for concern include equipment inventory, maintenance, repair, and replacement.

At ComputerTown, Menlo Park and ComputerTown, USA! a variety of approaches to these problems were tried. At first, ComputerTown, Menlo Park operated with borrowed computers only. Each owner took charge of his or her machine and personally placed it in the hands of a friend when he was not attending the event. Owners maintained their equipment and arranged for extra peripherals such as printers or large screens when needed. Owners also provided whatever software they chose. Later, a box of cassette tapes with programgs were put near the computers for use by anyone. Occasionally volunteers would review the box, reorganize it, and replace damaged tapes.

After the first computers were donated to the Menlo Park Library, more formal plans had to be made. For the first year, while the ComputerTown, USA! model was under development, Barbara Harvie, ComputerTown's Library Liaison, spent ever afternoon at the library. Her duties included teaching, validating library cards, checking out software tapes (which she kept organized and in working order), cleaning keyboards, and performing other routine maintenance tasks. As Library Liaison, she also collected data on library use of computers and made observations of ComputerTown visitor characteristics, such as sex, background, level of experience upon first visit, speed of progress, and software preferences.

During the second year of the project, no staff person was regularly assigned to the Menlo Park Library and several computers were brought back to project headquarters a few blocks away. A simple inventory and check-out system was instituted so that anyone on staff could tell at a glance what equipment the project had, where each individual piece of equipment was at that moment, when it had last received maintenance, and its current state of repair. Please feel free to use the following model for your own inventory system.

Inventory

To set up the inventory system you need labels and a box of 5" x 7" cards. Label each piece of hardware with a designated number. It is important to number cartridges and switch boxes as well as computers and monitors. A good rule of thumb is: if it could become separated, lost, or left behind, give it a number. Each numbered item should be represented by a card in your file box. At ComputerTown International, the cards look like this:

BRAND ITEM NUMBER

Serial Number: Owner:

Date	Taken From	Taken To	By	Date Returned
3/1/81	Office	Jr. Museum	Liza	3/2/81
3/6/81	Office	CDC Repair	Ann	3/9/81

Notes on each item's state of repair can be added free form. Since a computer system is often comprised of several inventory items, clip cards together to

speed up the process of checking out whole systems. Do resist the temptation to put several items on a single card, or you will have to make a whole new card each time you replace a connector cable. Handling separate cards also makes you less likely to forget small items when picking up or returning equipment.

Most of the time an inventory system may seem like an unnecessary hassle. However, it will pay off if anything ever does turn up missing. You will also find the information collected by this system will help you decide on future equipment acquisition.

Equipment Maintenance

Computers, even little ones, are complex electronic gadgets. They will serve you well if given proper care, but they do have their frailties, and each will one day cross the threshold of being no longer worth repair.

It is a good idea to have a rotating machine maintenance schedule, taking one computer at a time to your local dealer for routine tune up. This need not be too frequent if you can manage minor repairs yourself. There is nothing you can do at the keyboard to actually break a computer, although spontaneous internal problems could occur while you happened to be using one. If you suspect something is wrong with your machine, explore the following points before rushing it to the dealer for repair:

Preliminary Trouble-Shouting Routine

How to Figure Out What's Wrong:

1) Check all cords and connectors.
   - o Is there power to each part of the system?
   - o Are connectors plugged in all the way?
   - o Are the wrong sockets connected together?

2) Check the monitor or TV.
   - o Is it lit?
   - o Is it turned on?
   - o Is it plugged in?
   - o Is the TV tuned to the correct channel?

- Has someone been fiddling with the TV controls? (Check brightness, horizonal/vertical hold.)
- Check the fuses.

3) Check tape recorders.

- Try different tapes.
- Check volume if applicable.
- Clean tape heads (see below).

4) Check cartridge slots if you have them.

- Are they dusty?
- Is cartridge firmly seated in its slot?
- Are the edge connectors on the cartridge dirty? If so, wipe them clean and then polish them with a pencil eraser.

5) Check your computer's temperature. If it is hotter to the touch than usual, turn it off and let it cool. Many microcomputers will not function reliably in rooms warmer than 85o Farenheit. Even if the room seems cool to you, it is much hotter inside the machine.

Cleaning Tape Heads

The most common equipment problem encountered at ComputerTown, Menlo Park was caused by the cassette tape players on Commodore PETs and Radio Shack TRS-80s. Cleaning the tape heads regularly is good preventive maintenance.

The tape heads become coated with residues from the magnetic tape when the cassette players are heavily used. If the heads are not cleaned regularly, the tapes will not load correctly. The computer will respond with a LOAD ERROR message and the tape must be reloaded. To fix this, you will need:

- Cotton swabs
- Alcohol

Remove the cassette. Press the PLAY button and clean the protruding metal heads by rubbing them gently with a cotton swab dipped in alcohol. Try loading a tape again.

Cassette Control Button Malfunction

Cassette control buttons (FAST FORWARD, REWIND, and so on) can become loose in time. In order to rewind properly, you have to keep your finger pressed down on the button. If this problem occurs, take the recorder to the repair shop.

Troubleshooting Tapes

Sometimes it is not the tape player, but the tape itself which causes a problem. The tape surface wears out over time and should eventually be discarded. Watch out for fingerprints on the recording surface. The cure for fingerprints on the program section of the tape is to require that each person rewind the tape before removing it from the tape player. In this way, they handle only the leader on the front of the tape.

Preventing Keyboard Trouble

Keyboards can really take a beating in the public access environment. You can protect the top of each key by coating it with clear fingernail polish.

Sticking Keys

Residue sometimes accumulates within the key mechanism and prevents contact from taking place. Press each key several times. If you have to apply undue pressure to make the letter appear on the screen there is probably too much residue to allow the contact to take place. Note how many times the key sticks or the letter fails to appear on the screen.

The PETs in use at the Menlo Park Library needed keyboard cleaning once a month. The tools required for keyboard maintenance are:

- o Phillips screwdriver
- o Tiny jeweller's screwdriver
- o Cotton swabs
- o Alcohol

Unplug the computer. Unscrew the hood of the PET with the Phillips screwdriver and prop it up much like you would the hood of a car. Using the jeweller's screwdriver, remove all the tiny screws which hold the contact board to the keyboard. Be careful not to lose the screws. Lift the contact board away from the

keyboard while keeping the wires intact. Holding the contact board in one hand, take a cotton swab dipped in alcohol and rub the contact board. You can actually see the residue (fine, off- white powder). If the board is particularly dirty, you may want to clean it again with a new cotton swab. Clean the underside of the keyboard which is still attached to the hood. Clean inside the round indentations. Replace the contact board with the tiny screws. This process takes 15-20 minutes.

On computers with full-stroke keyboards, often the key tops can be popped off with a knife or screwdriver exposing the key contact below. Check with your computer dealer or repair person to make sure you have this type of keyboard. If so, clean with cotton swabs and alcohol.

Fuse Trouble

Another source of machine malfunction and potential shock to the user involves the fuse.

On the PET, the fuse is located next to the toggle switch that turns on the machine. It is housed in a round plastic holder protruding from the back of the machine. Children often find this confusing because it resembles an "on/off" switch. As a result, the fuse often becomes loose, and simply needs to be placed in its holder and tightened. Be sure to unplug the machine before doing this!

With repeated misuse, the plastic casing surrounding the fuse may crack, making it difficult to seat the fuse properly. A temporary measure would be to secure the fuse cap with electrical tape until the machine can no longer function. By that time, you will want to take your machine down to your dealer for factory maintenance.

Other brands have fuses too but they may not be easily accessible. Check your User's Guide or reference manual for details.

Of course, your building has fuses or circuit breakers also. If all the machines go off at once, check the building power. Another building power problem may be caused by other appliances (a refrigerator, for example) which generate electrical noise. This is passed along the power lines to each computer and may show up as distortion on each computer display. The cure for this is to buy a "line filter" for each computer or for the offending appliance. Plugged between the wall and the

appliance, the filter may solve the problem.

Problems Beyond Your Scope

Every once in a while you may really have a sick computer which needs expert diagnosis and repair. If you can't get any response at all from your computer, if it fills its screen with gibberish, if it totally ignores the keyboard, gives you constant LOAD ERROR messages, or just stops running every few minutes, don't waste too much time trying to fix it yourself. Call your dealer and make arrangements for repair. Replacing one small chip or resoldering a wire may be all that is needed.

Hardware Security

There was no problem with stolen computers at the Menlo Park test site. If theft is a problem in your area, a locking pad can secure the computers to tables at a cost of about $70.00 each. Several times, fuses were lost from the PET computers and machines were disabled. With a minor adjustment, the fuses were placed on the inside, which made them inaccessible to the average user.

C. Software Storage: Selecting the Right Medium

Previous sections of this book have given advice on selecting and obtaining computers for your project. Not only will you have to choose which computer(s) to add to your ComputerTown resources, but also what kind of storage medium to use: cassette, ROM cartridge, floppy diskette or hard disk.

Cassettes can create complications at a public access ComputerTown site. The cassette loading process requires two to three minutes per game. Also, since they fit so easily into a pocket, cassettes may tend to disappear. Cassettes are also fragile, especially when used by newcomers who do not know how to handle and care for them properly. These potential complications can be handled best by appointing one member of the project to make sure cassettes are being loaded and cared for properly by the users, and that they are in working order at all times.

The floppy diskette system is better for ComputerTown use because several games or other activities may be stored on one diskette, allowing visitors to simply type in a catalog list and select an activity. This takes less time than required to load a cassette. Since the diskette contains several programs the jobs of maintenance, cataloging, and circulation are easier to perform.

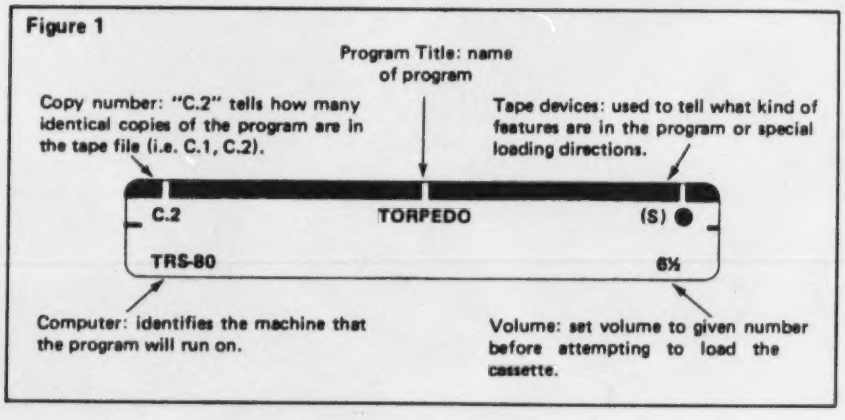
ROM cartridges have an extra convenience in that they are not as delicate as diskettes or tapes and are every bit as easy to use. Of the three storage media, cartridges are the simplest to maintain and repair. Considering the amount of use your ComputerTown resources will receive, that's a strong point in favor of cartridges if the computers you have or want to obtain can use cartridges. Not all computers are designed for cartridge software.

Hard disks can be added to many of the microcomputers now available, allowing you to store a large program library on this single medium. All hard disks are expensive when compared to the other storage media but they may pay off for you because of their speed, ease of use, and reliability.

Networking several small computers together

so that they may share several floppy disk drives or a hard disk drive is also an excellent strategy. Many educational projects do this very successfully when there is a permanent facility for equipment.

Figure 1


Program Title: name of program
Copy number: "C.2" tells how many identical copies of the program are in the tape file (i.e. C.1, C.2).
Tape devices: used to tell what kind of features are in the program or special loading directions.
C.2
TORPEDO
(S)
TRS-80
6½
Computer: identifies the machine that the program will run on.
Volume: set volume to given number before attempting to load the cassette.

CASSETTE TAPE LABEL

(see next page)

D. Cataloging Software

A cataloging system will be necessary to avoid chaos, especially as your software collection grows in size and scope. The following system, used at ComputerTown, Menlo Park, was developed by teenage volunteer Niels Mortenson. It is user-oriented and deals only with cassette materials, since that was the only storage medium used at the Menlo Park site. The system provides the information one needs to know about the program when sitting down at the computer. Although it was designed for tapes used with the TRS-80, it can be easily modified for tapes used on other computers.

Each tape is labeled as in Figure 1.

(see previous page)

There are a number of codes available under "Tape Devices"; they are:

(N) No devices. This means that no special devices are needed, and there are no special loading instructions.

(S) Sound. This means that the program has sound, so plug the AUX plug from the computer into a small amplifier to hear the sound.

(I) Instructions. This means that there is a sheet of directions for running/playing the program or game. Ask an aide for the instructions.

(●) "System" dot. The program is a "machine language" program and must be loaded under the "SYStem" command.

All this information was coded on Dennison file folder labels which were attached to both the cassette and its storage box. Using different colored labels allowed the computer/tapes to be color coded by computer system. The codes were listed in a master catalog available to patrons. A sheet of instructions reminded patrons to rewind tapes, replace them in their storage boxes, and return

them exactly where they were found.

While a cataloging system is helpful and necessary, don't be surprised if some of the chaos remains if you are using cassettes in a public access setting. Cassettes present a unique set of problems for cataloging and maintenance, especially when you are dealing with a variety of machines. Not only do you have different kinds of machines, but variations within one category: two PETs may not be exactly alike, for example. Problems of this sort can be greatly eased by using diskettes or cartridges instead of cassettes. When disks or cartridges become disorganized with use, they can more easily be sorted.

E. Copyright Considerations

Software is copy protected material. According to copyright laws, software should not be copied except for the personal use of the purchaser. This means that ComputerTown visitors should not take your software home to copy, nor should they make copies at ComputerTown. You can, however, make copies for your own use for backup and circulation within your own group.

F. Software Security

When cassette loss became a problem for a time at the Menlo Park test site, ComputerTown staff soon learned not to keep the master tapes accessible to the public. The masters were needed to produce backup copies. The staff also discovered the problem of disappearing tapes could be all but alleviated if the patrons were required to leave something of value, such as a driver's license, in exchange for the tape. Precautions of this sort are good practice, no matter what storage medium your ComputerTown uses.

G. Print Materials

Your most visible piece of ComputerTown courseware should be a simple, step-by-step set of materials on "How to Use This Computer," geared toward the absolute novice. After going through the validation process, visitors can turn to this booklet to begin their self-instruction. The "How to..." booklet, and other fundamental print materials, should be shelved close to the computers for easy reference.

Books about computers and computing, especially those of interest to beginners, are also valuable reference materials. Since each microcomputer has its own BASIC language, it is important to have the right programming books for your particular machines. These books will be in high demand, especially when the machines are used to learn programming. One permanent reference copy of each volume could be kept near the appropriate computer, and two or three additional copies of each could be offered for circulation.

Resource lists are also very helpful in a self-teaching environment. Resources may be divided according to category of interest (classroom uses, business, hobbies, buying your own computer, and so forth). They can be further cataloged by format (newsletters, magazines, books, places, courses). While content descriptions are helpful, they need not be evaluative. You might consider offering printed copies of the most frequently used resource lists for public dissemination.